

catalog and price list

MACHINE KEYS ■
WOODRUFF KEYS ■
GILLEN GROOVE PINS
TAPER PINS ■
DOWEL PINS ■
PIVOT PINS ■
TENSION PINS ■
TENSION BUSHINGS ■



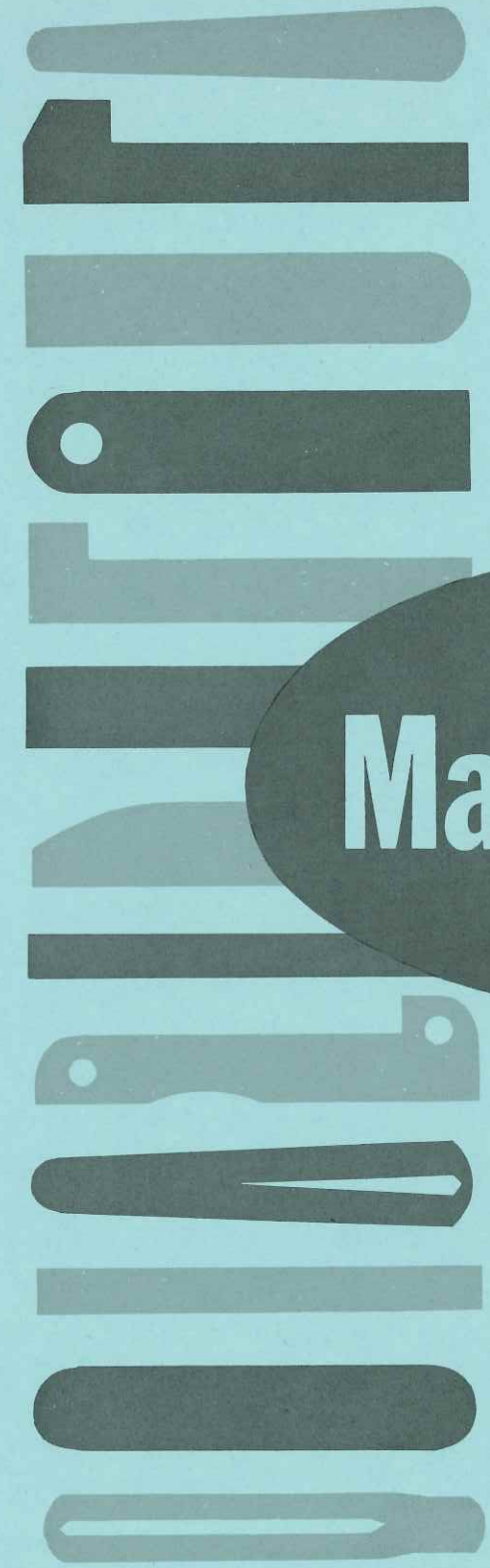
Home of Gillen Quality

JOHN GILLEN COMPANY



subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS, 60650 • AREA CODE 312
CHICAGO PHONE 242-4575
CICERO PHONE 656-4240



Catalog and Price List

Machine Keys

Home of Gillen Quality

- MACHINE KEYS
- WOODRUFF KEYS
- GILLEN GROOVE PINS
- TAPER PINS
- DOWEL PINS
- PIVOT PINS
- TENSION PINS
- TENSION BUSHINGS



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO 50, ILL.

Gillen's Finished Machine Keys

Since 1920 John Gillen Company has been serving many of the leading machinery builders throughout the United States and Canada with their requirements for finished Machine Keys. During this time we have become specialists in this field, having developed special fixtures and equipment which enable us to use the most efficient and economical methods. Our experience and tooling assures our customers uniform quality at economical prices.

Our standard keys include Gib Head Taper Keys, Plain Taper Keys, Straight Keys, Round End Feather Keys, and Tit Keys. These standard keys are generally made from AISI C-1018 steel, but we also make keys from C-1045, alloy steels, stainless steels, monel, and brass. Due to our special accuracy requirements our steel is drawn to close tolerance and we carry a complete stock in C-1018 and the popular sizes in other grades.

Our standard tolerances on $\frac{3}{4}$ " sizes and smaller for Gib Head Keys and Plain Taper Keys are plus .001" minus .000" for the width, plus .005" minus .000" for the height. On Square End Feather Keys and Round End Feather Keys, plus .001" minus .000" on the height and the width. On sizes larger than $\frac{3}{4}$ " there may be some slight variation to the above tolerances.

Length tolerance for Gib Head, Taper and all Square End Keys is plus or minus .010; Round End Feather Keys, plus .000, minus .005.

We can work to any special tolerance that may be required.

Standard Gib Keys are ordinarily carried in stock in popular sizes.

Gillen's Finished Machine Keys are made to save you time, labor and money. Use them in every assembly.

Special Keys and Machine Parts

We have developed a department which is well tooled and equipped to make up any variation from the Standard Key and any Special Machine Part as illustrated on other pages. We are well equipped to produce any special parts of a square or flat nature that require special milling, drilling, tap-

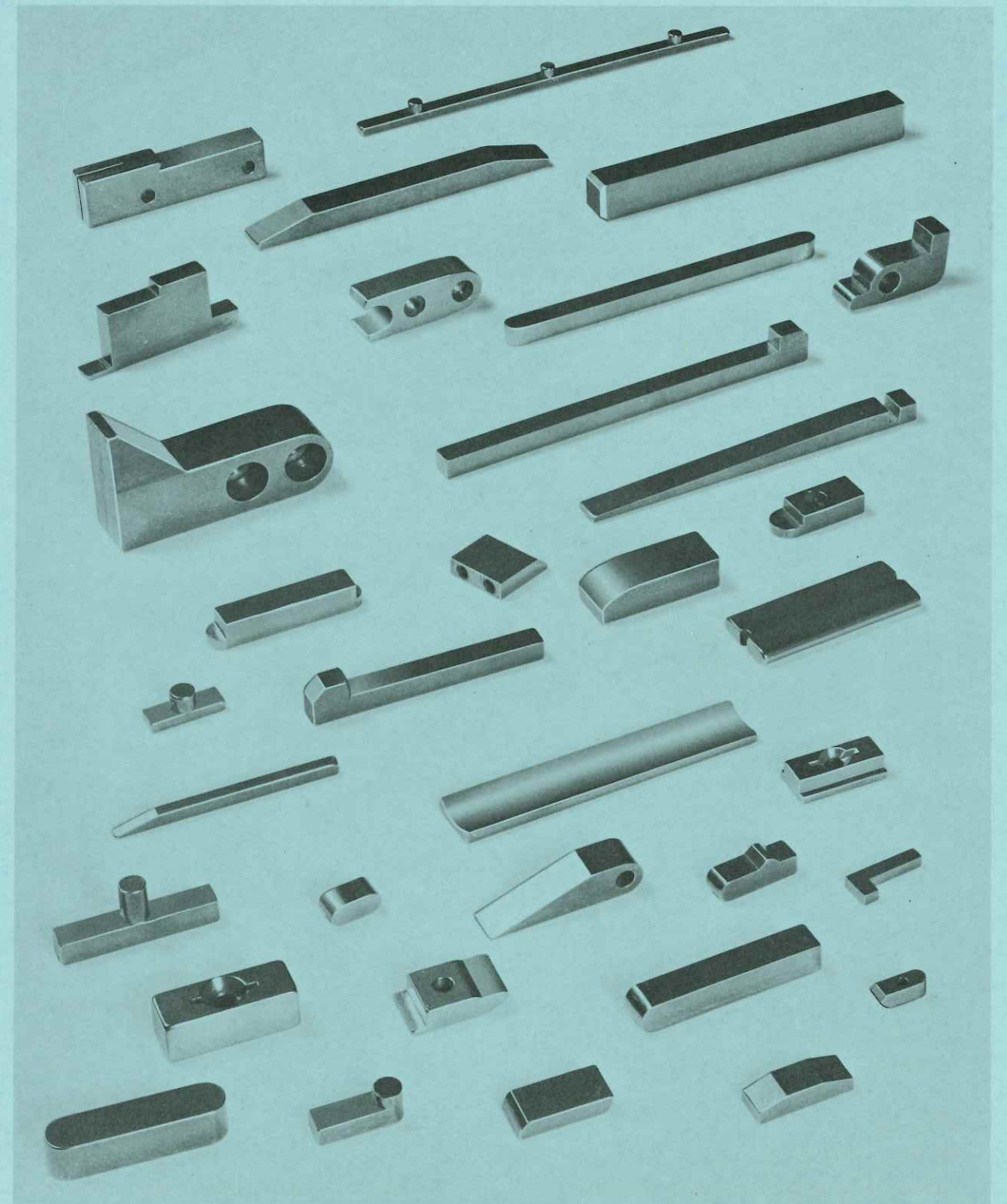
ping, countersinking, counterboring, and surface grinding. This type of work can be done on all kinds of metal, heat-treated and surface ground to your own tolerance requirements. This department comprises a large part of our business and we solicit your blueprints for quotation.



JOHN GILLEN COMPANY
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2540 SOUTH 50th AVENUE • CICERO 50, ILL.

Special Keys and Machine Parts



A few of the many types of Special Keys and Machine Parts which we have made are illustrated above. We are equipped to manufacture this class of work to satisfy the most exacting demands for accuracy, finish and quality.

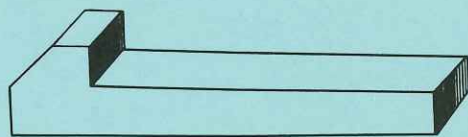


JOHN GILLEN COMPANY
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2540 SOUTH 50th AVENUE • CICERO 50, ILL.

Price List

Standard Square Keys with Heads



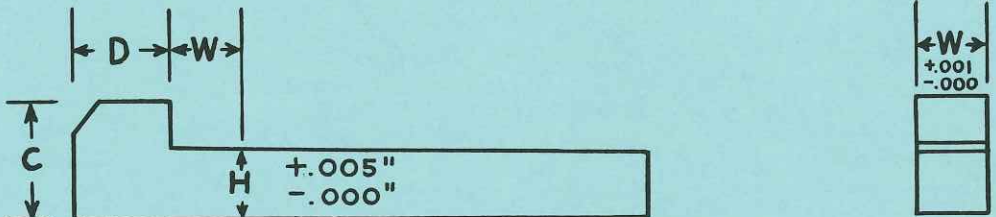
LIST PRICE PER 100

DIMENSIONS IMMEDIATELY UNDER HEAD IN INCHES
HORIZONTAL DIMENSION DENOTES WIDTH OF KEY, VERTICAL DIMENSION DENOTES LENGTH

Lgth. Under Head	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	Lgth. Under Head	
1	18.00	18.50	19.00	20.00	22.00	25.00	29.00	34.00	43.90	60.70	89.10	126.40	160.10	215.80	262.30	340.20	401.50	433.30	505.00	582.50	1
1 1/2	19.20	19.80	20.40	21.50	23.80	27.10	31.60	37.20	47.80	66.40	97.10	126.40	160.10	215.80	262.30	340.20	401.50	433.30	505.00	582.50	1 1/2
2	20.40	21.10	21.80	23.00	25.60	29.20	34.20	40.40	51.20	70.80	106.40	137.20	174.10	215.80	262.30	340.20	401.50	433.30	505.00	582.50	2
2 1/2	21.60	22.40	23.20	24.50	27.40	31.30	36.80	43.60	51.70	72.10	97.10	126.40	160.10	215.80	262.30	340.20	401.50	433.30	505.00	582.50	2 1/2
3	22.80	23.70	24.60	26.00	29.20	33.40	39.40	46.80	55.60	77.80	105.10	137.20	174.10	215.80	262.30	340.20	401.50	433.30	505.00	582.50	3
3 1/2	24.00	25.00	26.00	27.50	31.00	35.50	42.00	50.00	59.50	83.50	113.10	148.00	188.10	233.50	284.20	340.20	401.50	433.30	505.00	582.50	3 1/2
4	25.20	26.30	27.40	29.00	32.80	37.60	44.60	53.20	63.40	89.20	121.10	158.80	202.10	251.20	306.10	366.80	433.30	505.00	582.50	666.20	4
4 1/2	26.40	27.60	28.80	30.50	34.60	39.70	47.20	56.40	67.30	94.90	129.10	169.60	216.10	268.90	328.00	393.40	465.10	542.40	626.00	715.90	4 1/2
5	27.60	28.90	30.20	32.00	36.40	41.80	49.80	59.60	71.20	100.60	137.10	180.40	230.10	286.60	349.90	420.00	496.90	579.80	669.50	766.00	5
5 1/2	28.80	30.20	31.60	33.50	38.20	43.90	52.40	62.80	75.10	106.30	145.10	191.20	244.10	304.30	371.80	446.60	528.70	617.20	713.00	816.10	5 1/2
6	30.00	31.50	33.00	35.00	40.00	46.00	55.00	66.00	79.00	112.00	153.10	202.00	258.10	322.00	393.70	473.20	560.50	654.60	756.50	866.20	6
6 1/2	31.20	32.80	34.40	36.50	41.80	48.10	57.60	69.20	82.90	117.70	161.10	212.80	272.10	339.70	415.60	499.80	592.30	692.00	800.00	916.30	6 1/2
7	32.40	34.10	35.80	38.00	43.60	50.20	60.20	72.40	86.80	123.40	169.10	223.60	286.10	357.40	437.50	526.40	624.10	729.40	843.50	966.40	7
7 1/2	33.60	35.40	37.20	39.50	45.40	52.30	62.80	75.60	90.70	129.10	177.10	234.40	300.10	375.10	459.40	553.00	655.90	766.80	887.00	1016.50	7 1/2
8	34.80	36.70	38.60	41.00	47.20	54.40	65.40	78.80	94.60	134.80	185.10	245.20	314.10	392.80	481.30	579.60	687.70	804.20	930.50	1066.60	8
8 1/2	36.00	38.00	40.00	42.50	49.00	56.50	68.00	82.00	98.50	140.50	193.10	256.00	328.10	410.50	503.20	606.20	719.50	841.60	974.00	1116.70	8 1/2
9	37.20	39.30	41.40	44.00	50.80	58.60	70.60	85.20	102.40	146.20	201.10	266.80	342.10	428.20	525.10	632.80	751.30	879.00	1017.50	1166.80	9
9 1/2	38.40	40.60	42.80	45.50	52.60	60.70	73.20	88.40	106.30	151.90	209.10	277.60	356.10	445.90	547.00	659.40	783.10	916.40	1061.00	1216.90	9 1/2
10	39.60	41.90	44.20	47.00	54.40	62.80	75.80	91.60	110.20	157.60	217.10	288.40	370.10	463.60	568.90	686.00	814.90	953.80	1104.50	1267.00	10
10 1/2	40.80	43.20	45.60	48.50	56.00	64.90	78.40	94.80	114.10	163.30	225.10	299.20	384.10	481.30	590.80	712.60	846.70	991.20	1148.00	1317.10	10 1/2
11	42.00	44.50	47.00	50.00	58.00	67.00	81.00	98.00	118.00	169.00	233.10	310.00	398.10	499.00	612.70	739.20	878.50	1028.60	1191.50	1367.20	11
11 1/2	43.20	45.80	48.40	51.50	60.00	69.00	84.00	102.00	122.00	174.00	241.10	320.80	412.10	516.70	634.60	765.80	910.30	1066.00	1235.00	1417.30	11 1/2
12	44.40	47.10	49.80	53.00	62.00	71.00	86.00	104.00	125.00	180.00	249.10	331.60	426.10	534.40	656.50	792.40	942.10	1103.40	1278.50	1467.40	12
12 1/2	45.60	48.40	51.20	54.50	64.00	73.00	88.00	107.00	129.00	186.10	257.10	342.40	440.10	552.10	678.40	819.00	973.90	1140.80	1322.00	1517.50	12 1/2
13	46.80	49.70	52.60	56.00	66.00	75.00	90.00	109.00	130.00	194.00	265.10	353.20	454.10	569.80	700.30	845.60	1005.70	1178.20	1365.50	1567.60	13
13 1/2	48.00	51.00	54.00	57.50	68.00	77.00	92.00	111.00	132.00	199.00	273.10	364.00	468.10	587.50	722.20	872.20	1037.50	1215.60	1409.00	1617.70	13 1/2
14	49.20	52.30	55.40	59.00	70.00	79.00	94.00	113.00	134.00	204.00	281.10	374.80	482.10	605.20	744.10	898.80	1069.30	1253.00	1452.50	1667.80	14
14 1/2	50.40	53.60	56.80	60.50	72.00	81.00	96.00	115.00	136.00	209.00	289.10	385.60	496.10	622.90	766.00	925.40	1101.10	1290.40	1496.00	1717.90	14 1/2
15	51.60	54.90	58.20	62.00	74.00	83.00	98.00	117.00	138.00	214.00	297.10	396.40	510.10	640.60	787.90	952.00	1132.90	1327.80	1539.50	1768.00	15
15 1/2	52.80	56.20	59.60	63.50	76.00	85.00	100.00	119.00	140.00	219.00	305.10	407.20	524.10	658.30	809.80	978.60	1164.70	1365.20	1583.00	1818.10	15 1/2
16	54.00	57.50	61.00	65.00	78.00	87.00	102.00	121.00	142.00	224.00	313.10	418.00	538.10	676.00	831.70	1005.20	1196.50	1402.60	1626.50	1868.20	16
16 1/2	55.20	58.80	62.40	66.50	80.00	89.00	104.00	123.00	144.00	229.00	321.10	428.80	552.10	693.70	853.60	1031.80	1228.30	1440.00	1670.00	1918.30	16 1/2
17	56.40	60.10	63.80	68.00	82.00	91.00	106.00	125.00	146.00	234.00	329.10	439.60	566.10	711.40	875.50	1058.40	1260.10	1477.40	1713.50	1968.40	17
17 1/2	57.60	61.40	65.20	69.50	84.00	93.00	108.00	127.00	148.00	239.00	337.10	450.40	580.10	729.10	897.40	1085.00	1291.90	1514.80	1757.00	2018.50	17 1/2
18	58.80	62.80	66.60	71.00	86.00	95.00	110.00	129.00	150.00	244.00	345.10	461.20	594.10	746.80	919.30	1111.60	1323.70	1552.20	1800.50	2068.60	18

Table of Heads of John Gillen Company

Standard Gib Keys



Standard Taper 1/8" Per Foot. Variations in Taper Can Be Furnished at Standard Price.
Taper Runs to Head.

W	H	C	D	W	H	C	D
1/8"	1/8"	1/4"	1/4"	1 5/16"	1 5/16"	1 1/2"	1 1/16"
3/16"	3/16"	5/16"	5/16"	1"	1"	1 5/8"	1 1/8"
1/4"	1/4"	7/16"	3/8"	1 1/16"	1 1/16"	1 11/16"	1 3/16"
5/16"	5/16"	1/2"	7/16"	1 1/8"	1 1/8"	1 3/4"	1 5/16"
3/8"	3/8"	5/8"	1/2"	1 3/16"	1 3/16"	1 13/16"	1 3/8"
7/16"	7/16"	3/4"	9/16"	1 1/4"	1 1/4"	2"	1 7/16"
1/2"	1/2"	7/8"	5/8"	1 3/8"	1 3/8"	2 1/8"	1 9/16"
9/16"	9/16"	7/8"	1 1/16"	1 1/2"	1 1/2"	2 3/8"	1 3/4"
5/8"	5/8"	1"	3/4"	1 5/8"	1 5/8"	2 1/2"	1 7/8"
1 1/16"	1 1/16"	1 1/8"	1 3/16"	1 3/4"	1 3/4"	2 3/4"	2"
3/4"	3/4"	1 1/4"	7/8"	1 7/8"	1 7/8"	3 1/8"	2 1/8"
1 3/16"	1 3/16"	1 3/16"	1 5/16"	2"	2"	3 1/2"	2 1/4"
7/8"	7/8"	1 3/8"	1"	2 1/4"	2 1/4"	4"	2 3/4"

The above table is for Square Standard Keys.

For other than Standard Keys use the height, dimension "H", for determining height and length of head. Example: Key 1/2" wide, 3/8" high, "C" would be 5/8", "D" would be 1/2".

Specify width, depth at large end, length under head and taper per foot.

Standard taper is 1/8" per foot unless otherwise ordered.

Standard Keys are made from C1018 steel. Can also be furnished from high carbon, stainless, monel, alloy steel and brass.

We can furnish promptly any flat or special keys with any taper desired.



2540 SOUTH 50th AVENUE • CICERO 50, ILL.



2540 SOUTH 50th AVENUE • CICERO 50, ILL.

Price List

Standard Square Keys without Heads



LIST PRICE PER 100

DIMENSIONS AT LARGE END IN INCHES
HORIZONTAL DIMENSION DENOTES WIDTH OF KEY, VERTICAL DIMENSION DENOTES LENGTH

Lgth. Over- all	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	Lgth. Over- all	
1	13.35	13.95	14.25	15.00	16.50	18.75	21.75	25.50	33.00	46.95	76.05									1	
1 1/2	14.25	15.00	15.30	16.20	17.85	20.40	23.70	27.90	36.00											1 1/2	
2	15.15	16.05	16.35	17.40	19.20	22.05	25.65	30.30		46.95										2	
2 1/2	16.05	17.10	17.40	18.60	20.55	23.70	27.60	32.70	39.00	51.30	61.50									2 1/2	
3	16.95	18.15	18.45	19.80	21.90	25.35	29.55	35.10	42.00	55.65	67.50	84.15								3	
3 1/2	17.85	19.20	19.50	21.00	23.25	27.00	31.50	37.50	45.00	60.00	73.50	92.25	115.50	144.00						3 1/2	
4	18.75	20.25	20.55	22.20	24.60	28.65	33.45	39.90	48.00	64.35	79.50	100.35	126.00	157.35	193.50	234.45	281.10			4	
4 1/2	19.65	21.30	21.60	23.40	25.95	30.30	35.40	42.30	51.00	68.70	85.50	108.45	136.50	170.70	210.00	254.40	304.95	360.60	422.40	4 1/2	
5	20.55	22.35	22.65	24.60	27.30	31.95	37.35	44.70	54.00	73.05	91.50	116.55	147.00	184.05	226.50	274.35	328.80	388.65	455.10	5	
5 1/2	21.45	23.40	23.70	25.80	28.65	33.60	39.30	47.10	57.00	77.40	97.50	124.65	157.50	197.40	243.00	294.30	352.65	416.70	487.80	5 1/2	
6	22.35	24.45	24.75	27.00	30.00	35.25	41.25	49.50	60.00	81.75	103.50	132.75	168.00	210.75	259.50	314.25	376.50	444.75	520.50	6	
6 1/2	23.25	25.50	25.80	28.20	31.35	36.90	43.20	51.90	63.00	86.10	109.50	140.85	178.50	224.10	276.00	334.20	400.35	472.80	553.20	6 1/2	
7			26.85	29.40	32.70	38.55	45.15	54.30	66.00	90.45	115.50	148.95	189.00	237.45	292.50	354.15	424.20	500.85	585.90	677.55	7
7 1/2			27.90	30.60	34.05	40.20	47.10	56.70	69.00	94.80	121.50	157.05	199.50	250.80	309.00	374.10	448.05	528.90	618.60	715.20	7 1/2
8			28.95	31.80	35.40	41.85	49.05	59.10	72.00	99.15	127.50	165.15	210.00	264.15	325.50	394.05	471.90	556.95	651.30	752.85	8
8 1/2			30.00	33.00	36.75	43.50	51.00	61.50	75.00	103.50	133.50	173.25	220.50	277.50	342.00	414.00	495.75	585.00	684.00	790.50	8 1/2
9						45.15	52.95	63.90	78.00	107.85	139.50	181.35	231.00	290.85	358.50	433.95	519.60	613.05	716.70	828.15	9
9 1/2						46.80	54.90	66.30	81.00	112.20	145.50	189.45	241.50	304.20	375.00	453.90	543.45	641.10	749.40	865.80	9 1/2
10						48.45	56.85	68.70	84.00	116.55	151.50	197.55	252.00	317.55	391.50	473.85	567.30	669.15	782.10	903.45	10
10 1/2						50.10	58.80	71.10	87.00	120.90	157.50	205.65	262.50	330.90	408.00	493.80	591.15	697.20	814.80	941.10	10 1/2
11	.....	.....	.....	.....	.....	60.75	73.50	90.00	125.25	163.50	213.75	273.00	344.25	424.50	513.75	615.00	725.25	847.50	978.75	11	
11 1/2	.....	.....	.....	.....	.....	62.70	75.90	93.00	129.60	169.50	221.85	283.50	357.60	441.00	533.70	638.85	753.30	880.20	1016.40	11 1/2	
12	.....	.....	.....	.....	.....	64.65	78.30	96.00	133.95	175.50	229.95	294.00	370.95	457.50	553.65	662.70	781.35	912.90	1054.05	12	
12 1/2	.....	.....	.....	.....	.....	66.60	80.70	99.00	138.30	181.50	238.05	304.50	384.30	474.00	573.60	686.55	809.40	945.60	1091.70	12 1/2	
13	.....	.....	.....	.....	.....	.....	83.10	102.00	142.65	187.50	246.15	315.00	397.65	490.50	593.55	710.40	837.45	978.30	1129.35	13	
13 1/2	.....	.....	.....	.....	.....	.....	.....	105.00	147.00	193.50	254.25	325.50	411.00	507.00	613.50	734.25	865.50	1011.00	1167.00	13 1/2	
14	.....	.....	.....	.....	.....	.....	.....	108.00	151.35	199.50	262.35	336.00	424.35	523.50	633.45	758.10	893.55	1043.70	1204.65	14	
14 1/2	.....	.....	.....	.....	.....	.....	.....	111.00	155.70	205.50	270.45	346.50	437.70	540.00	653.40	781.95	921.60	1076.40	1242.30	14 1/2	
15	.....	.....	.....	.....	.....	.....	.....	.....	160.05	211.50	278.55	357.00	451.05	556.50	673.35	805.80	949.65	1109.10	1279.95	15	
15 1/2	.....	.....	.....	.....	.....	.....	.....	.....	164.40	217.50	286.65	367.50	464.40	573.00	693.30	829.65	977.70	1141.80	1317.60	15 1/2	
16	.....	.....	.....	.....	.....	.....	.....	.....	168.75	223.50	294.75	378.00	477.75	589.50	713.25	853.50	1005.75	1174.50	1355.25	16	
16 1/2	.....	.....	.....	.....	.....	.....	.....	.....	173.10	229.50	302.85	388.50	491.10	606.00	733.20	877.35	1033.80	1207.20	1392.90	16 1/2	
17	.....	.....	.....	.....	.....	.....	.....	.....	177.45	235.50	310.95	399.00	504.45	622.50	753.15	901.20	1061.85	1239.90	1430.55	17	
17 1/2	.....	.....	.....	.....	.....	.....	.....	.....	181.80	241.50	319.05	409.50	517.80	639.00	773.10	925.05	1089.90	1272.60	1468.20	17 1/2	
18	.....	.....	.....	.....	.....	.....	.....	.....	186.15	247.50	327.15	420.00	531.15	655.50	793.05	948.90	1117.95	1305.30	1505.85	18	

Specify width, depth at large end, length and taper per foot.

Standard taper is 1/8" per foot unless otherwise ordered.

This price list should be used in calculating No-Head-Tapered, No Head-No Taper and Round End Feather Keys.

Standard Keys are made from C1018 steel. Can also be furnished from high carbon, stainless, monel, alloy steel and brass.

We can furnish promptly any flat or special keys with any taper desired.



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO 50, ILL.



Home of GILLEN Quality

Machine Keys

Woodruff Keys

Special Machine Parts

Taper Pins

Gillen Groove Pins

Tension Pins

Tension Bushings

Dowel Pins

Pivot Pins



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO 50, ILL.

Discounts on Machine Keys

Effective September 20, 1957

Type of Key	Quantity	1 to 14	15 to 24	25 to 49	50 to 99	100 to 499	500 to 1499	1500 to 4999	5000 or over
Gib Head.....	+13	5	22	34	45	49	52	53	
No Head - Tapered.....	25	38	48	51	52	63	65	66	
No Head - No Taper.....	31	43	54	62	72	74	75	77	
Feather Keys - One End Round	11	15	22	39	49	52	54	55	
Feather Keys - Both Ends Round	8	11	15	26	40	42	45	48	

Minimum charge for any one order shall be \$10.00

Discounts are to be based upon the quantity of each individual item ordered.

When less than 100 pieces of an item are specified, discounts as shown in the above schedule shall be applied to each item plus set-up charges as follows: Gib Head, No Head-Tapered and Round End Keys—\$3.00; No Head, No Taper Keys \$2.00. If more than one length of the same size is specified there shall be only one set-up charge per size rather than per item except on round end keys. On this type of key the set-up charge shall be applied to each item ordered less than 100.

The discount on keys made from 40 to 50 Carbon Steel shall be 4% less on No Head-Tapered, No Head-No Taper, and Feather Keys. Prices on application for Gib Keys.

Example: discount on 50-99 Taper Keys is 51%. On this type of key made from 40 to 50 Carbon Steel the discount would be 47%.

Terms:—½ of 1%, 10 days, 30 days net from date of invoice or invoices from 1st to 15th of month, payable on 25th of the same month less cash discount, and invoices from 15th to last of month payable on 10th of following month, less cash discount.

Quotations are f.o.b. Cicero, Illinois with privilege of equalizing transportation cost with nearest manufacturing competitor.

Method of Arriving at List Prices of Machine Keys

Gib Head Keys:—Where dimensions of cross section of key are not the same, use list prices applying to the width of the key from list of square keys with heads.

No Head-Tapered, No Head-No Taper, and Round End Keys:—Where dimensions of cross section are not the same, use list price of Keys of the greater dimension from list of square keys without heads. Sizes not shown on list price sheet will be considered special.

Length of Keys in connection with List Price:—Odd lengths of Keys under ¼" take the list price of the shorter length; ¼" and over take the list price of the next longer length.

Example:—Key 5-3/16" long would take 5" list while key 5¼" long would take the 5½" list.

Keys of special taper will carry same price as the standard taper of 1/8" per foot.

John Gillen Company
SUBSIDIARY OF STANDARD RAILWAY
EQUIPMENT MANUFACTURING COMPANY

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

Price List—Woodruff Keys

Effective September 25, 1953
LIST PRICE PER 100

A. S. M. E. Std. No.	S. A. E. Std. No.	Wood- ruff Key	Size Inches		Carbon S. A. E. 1035	Alloy Heat Treated	A. S. M. E. Std. No.	S. A. E. Std. No.	Wood- ruff Key	Size Inches		Carbon S. A. E. 1035	Alloy Heat Treated
			Width	Diam.						Width	Diam.		
		201	1/16 x 1/4		\$2.43	\$2.58			19	3/16 x 1-1/4		\$5.82	\$8.25
		206	1/16 x 5/16		2.43	2.58	810 1010 1210	210 215 225	20	7/32 x 1-1/4		6.72	9.72
		207	3/32 x 5/16		2.58	2.76			21	1/4 x 1-1/4		7.47	10.62
		211	1/16 x 3/8		2.43	2.58			D	5/16 x 1-1/4		8.91	13.02
		212	3/32 x 3/8		2.58	2.94			E	3/8 x 1-1/4		10.35	15.39
		213	1/8 x 3/8		2.76	3.12	811 1011 1211	--- --- ---	22 23 F	1/4 x 1-3/8		8.91 10.35 11.61	12.81 15.21 17.43
204 304 404	10 20 30	1 2 3	1/16 x 1/2		.66 .75 .87	.81 .99 1.26	812 1012 1212	--- --- ---	24 25 G	1/4 x 1-1/2		10.17 12.54 14.52	14.64 18.15 21.24
305 405 505 ---	40 50 60 --	4 5 6 61	3/32 x 5/8		.99 1.26 1.59 1.92	1.29 1.71 2.07 2.49			126 127 128 129	3/16 x 2-1/8		5.82 7.26 8.55 9.99	7.17 9.00 10.62 12.45
406 506 606 ---	70 80 90 --	7 8 9 91	1/8 x 3/4		1.53 1.86 2.10 2.85	2.07 2.46 3.00 3.99			26 27 28 29	3/16 x 2-1/8		8.19 10.74 13.26 15.24	11.46 14.88 18.51 21.63
507 607 --- 807 ---	100 110 --- 115 ---	10 11 12 A 121	5/32 x 7/8		2.67 3.03 3.42 3.87	3.66 4.29 5.01 5.55			RX SX TX UX VX	1/4 x 2-3/4		15.24 17.43 19.59 21.78 23.97	20.88 24.33 27.96 Discont. 35.04
608 --- 808 1008 ----	130 --- 150 155 ---	13 14 15 B 131	3/16 x 1		3.81 4.50 4.95 5.88	5.55 6.54 7.29 8.82			R S T U V	1/4 x 2-3/4		18.72 21.99 25.26 28.14 30.48	26.34 31.59 36.66 41.58 45.93
---	---	152	3/8 x 1		6.84	10.35				1/2 x 2-3/4			
---	---	141	1/4 x 1		4.35	6.33				3/8 x 3-1/2		36.87	58.08
609 --- 809 1009 ----	160 --- 180 185 ---	16 17 18 C 161	3/16 x 1-1/8		4.56 5.28 6.18 7.47	6.60 7.53 8.61 10.26			30 31 32 33 34 35 36	7/16 x 3-1/2		Discont.	Discont.
			7/32 x 1-1/8							1/2 x 3-1/2		44.85	70.95
			1/4 x 1-1/8							9/16 x 3-1/2		49.74	Discont.
			5/16 x 1-1/8							5/8 x 3-1/2		53.37	81.69
			5/16 x 1-1/8							11/16 x 3-1/2		58.80	Discont.
			5/16 x 1-1/8							3/4 x 3-1/2		63.15	96.21

NOTE

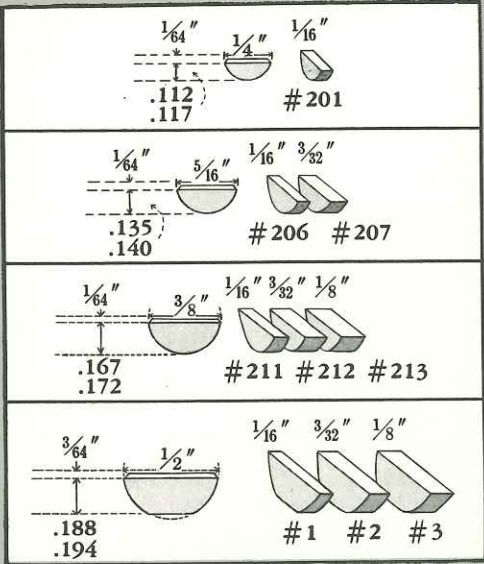
Order by Number.
Discounts on application.
Nickel Steel Keys heat treated to Rockwell C scale 40-50 unless otherwise specified.



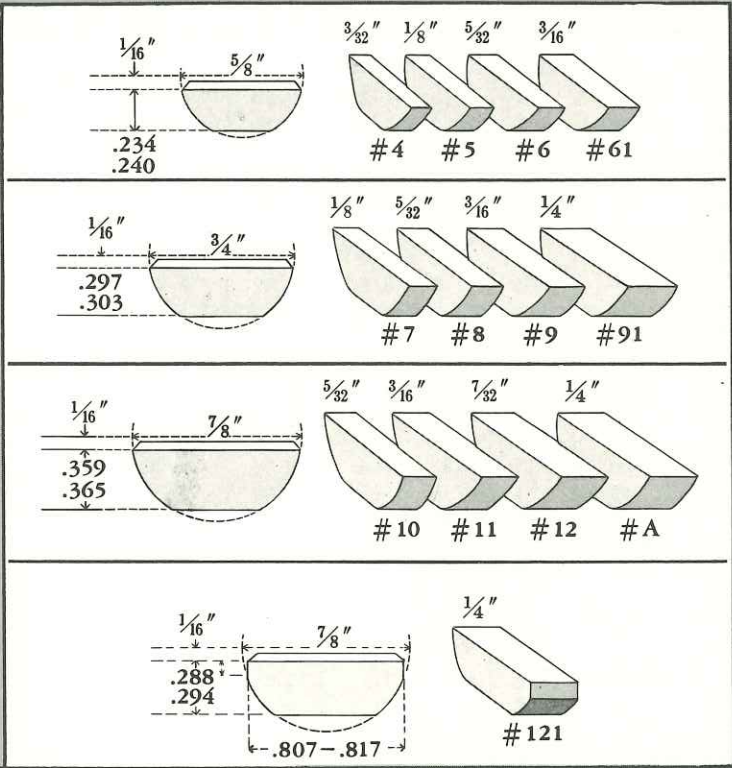
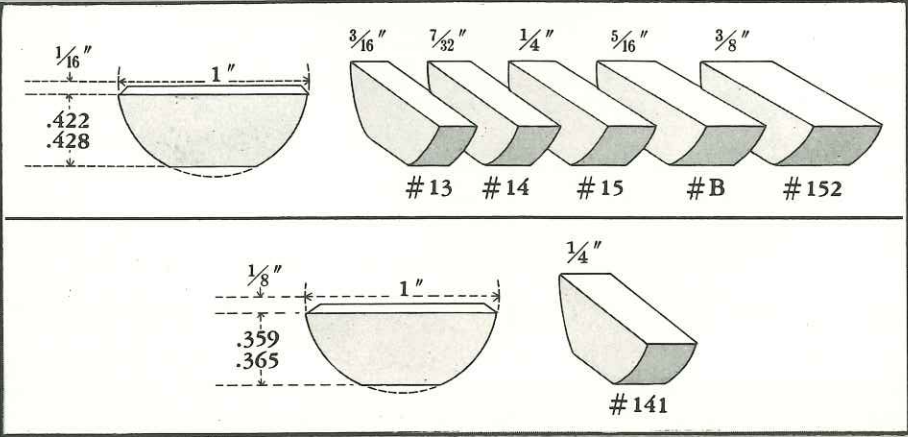
JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

Sizes of Standard Woodruff Keys

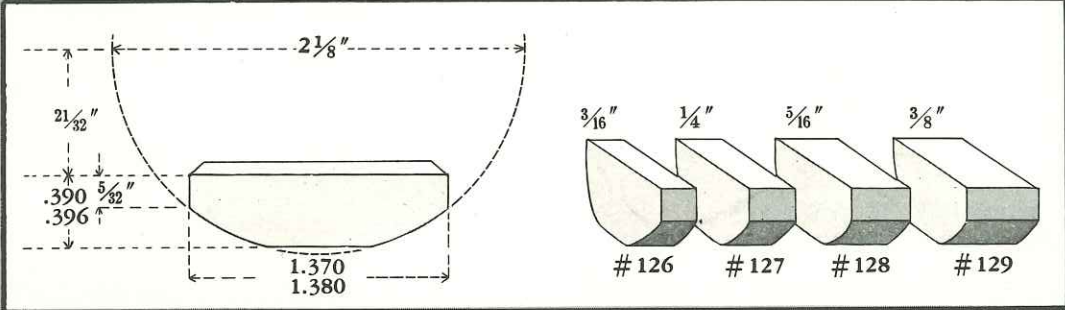
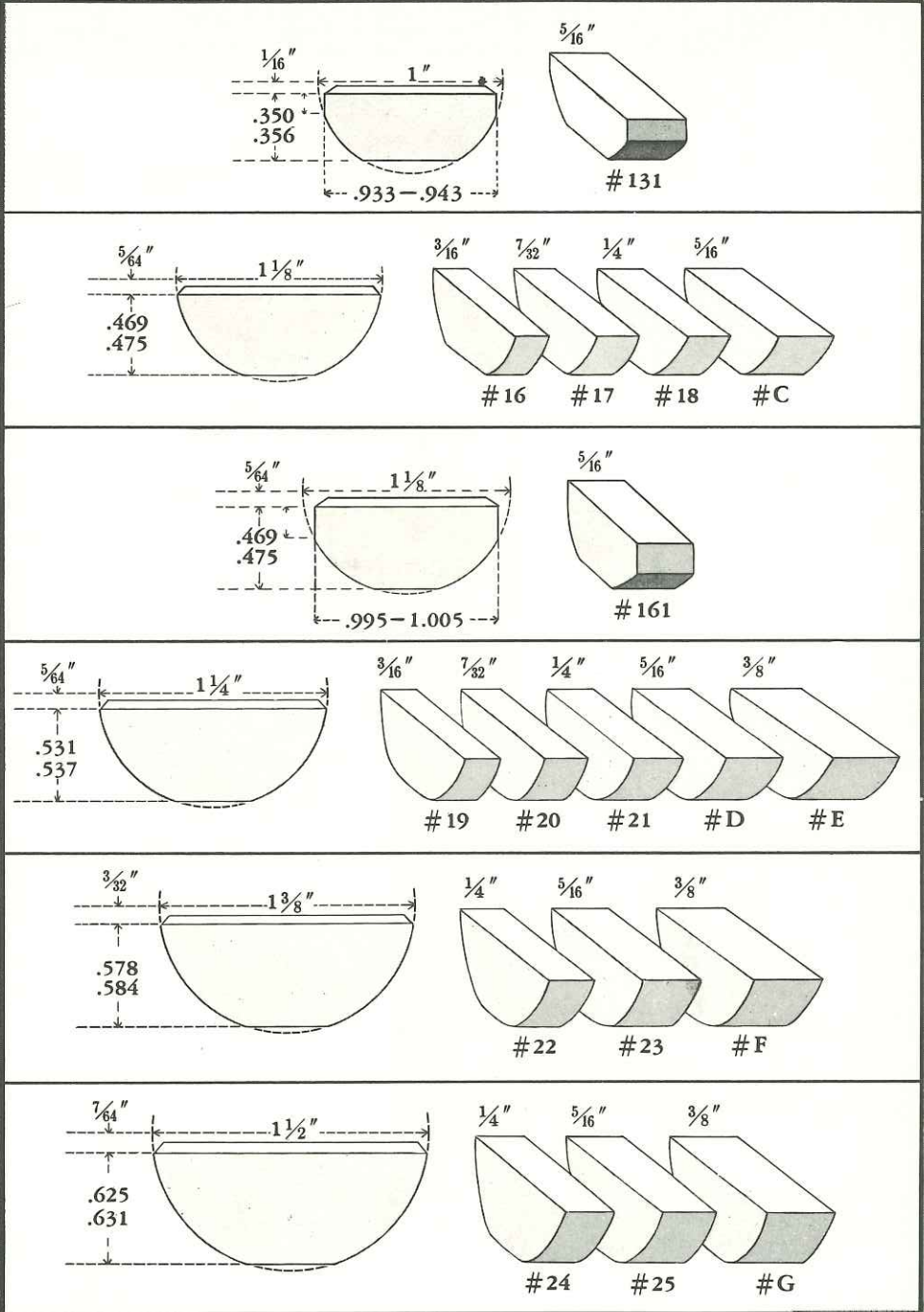


TOLERANCE ON WIDTHS
IS FROM BASIC SIZE LISTED TO +.001 -.000



The information on this Chart
is very useful for Purchasing
Agents—Engineers and Drafts-
men.

Illustrations Show Keys in Actual Sizes



John Gillen Company furnishes a complete line of keying and pinning devices including
WOODRUFF KEYS, MACHINE KEYS, TAPER PINS, GROOVE PINS, TENSION PINS, PIVOT PINS,
TENSION BUSHINGS AND SPECIAL MACHINE PARTS.



2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

Discounts on Woodruff Keys

Effective May 15, 1964

The following discounts apply to the Price List for Woodruff Keys which is effective on September 25, 1953.

BULK PACKED

100 to	499 pieces of one size.....	List Less 43%
500 to	999 pieces of one size.....	List Less 55%
1,000 to	4,999 pieces of one size.....	List Less 60%
5,000 to	9,999 pieces of one size.....	List Less 64%
10,000 to	24,999 pieces of one size.....	List Less 66%
25,000 to	49,999 pieces of one size.....	List Less 68%
50,000 to	99,999 pieces of one size.....	List Less 70%
100,000	and over pieces of one size.....	List Less 71%

MINIMUM CHARGE of \$10.00 for any one order.

Discount is to be applied to the quantity of each size and grade released for shipment at one time to one destination.

It is not to be applied to the accumulated quantity of sizes ordered.

Carton packed Woodruff Key prices on application.

Blanket orders accepted but the discount will be governed by the amount of the individual shipment.

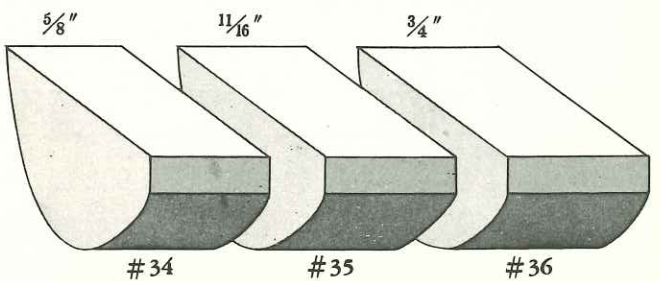
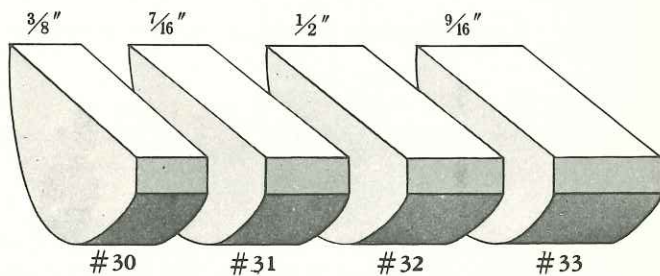
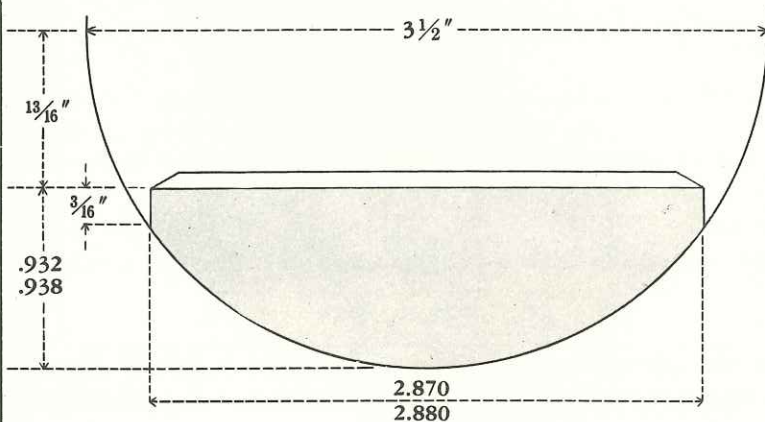
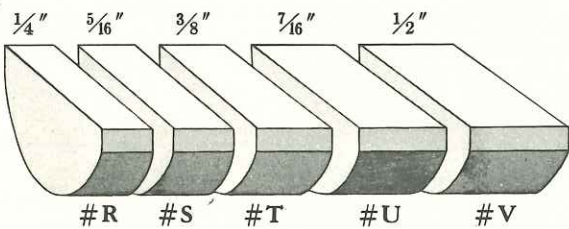
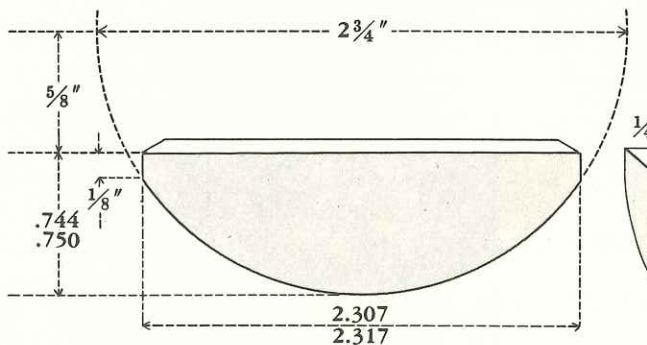
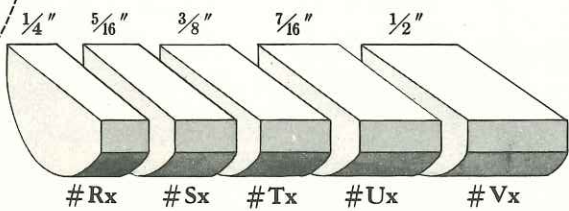
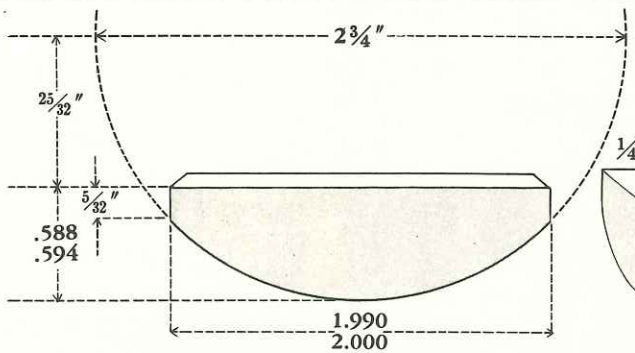
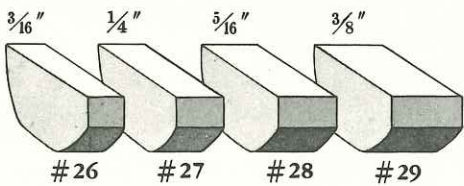
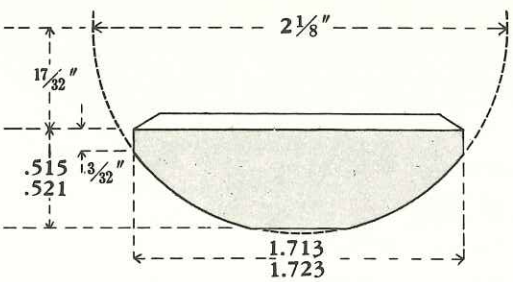
Quotations are F.O.B. Cicero, Ill., with an equalization of freight with other basing points on shipments of 25 lbs. or more by least expensive rail route. No freight equalization on parcel post or express shipments.

Terms: ½ of 1% 10 days, 30 days net from the date of invoice or invoices from 1st to 15th of month, payable on 25th of the same month less cash discount, and invoices from 15th to last of month payable on 10th of following month, less cash discount.



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650



TOLERANCE ON WIDTHS
IS FROM BASIC SIZE LISTED TO +.001 -.000



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650



Catalog and Price List

Taper Pins

Home of Gillen Quality

MACHINE KEYS
WOODRUFF KEYS
GILLEN GROOVE PINS
TAPER PINS
DOWEL PINS
PIVOT PINS
TENSION PINS
TENSION BUSHINGS



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

Price List—Standard Steel Taper Pins

DECEMBER 16, 1935



TAPER ONE-QUARTER INCH PER FOOT

LIST PRICE PER 100

Number	0	1	2	3	4	5	6	7	8	9	10	
Diam. Large End	.156	.172	.193	.219	.250	.289	.341	.409	.492	.591	.706	
Approximate Fractional Size	5/32	11/64	3/16	7/32	1/4	19/64	11/32	13/32	1/2	19/32	23/32	
Length												Length
3/4"	1.80	2.00	2.20	2.40	2.70	3.00	3.50	...	...	...	...	3/4"
1 "	2.10	2.30	2.50	2.70	3.00	3.30	4.00	6.50	7.60	10.80	14.40	1 "
1 1/4"	2.40	2.60	2.80	3.00	3.30	3.60	4.50	7.00	8.30	11.70	15.30	1 1/4"
1 1/2"	2.70	2.90	3.10	3.30	3.60	3.90	5.00	7.50	9.00	12.60	16.20	1 1/2"
1 3/4"	3.00	3.20	3.40	3.60	3.90	4.20	5.50	8.00	9.70	13.50	17.10	1 3/4"
2 "	3.30	3.50	3.70	3.90	4.20	4.50	6.00	8.50	10.40	14.40	18.20	2 "
2 1/4"	3.70	3.90	4.10	4.30	4.60	4.90	6.50	9.40	11.40	15.60	19.70	2 1/4"
2 1/2"	4.10	4.30	4.50	4.70	5.00	5.30	7.00	10.30	12.40	16.80	21.20	2 1/2"
2 3/4"	4.50	4.70	4.90	5.10	5.40	5.70	7.50	11.20	13.40	18.00	22.70	2 3/4"
3 "	4.90	5.10	5.30	5.50	5.80	6.10	8.00	12.10	14.40	19.20	24.20	3 "
3 1/4"	...	...	5.70	5.90	6.20	6.50	8.50	13.00	15.40	20.40	25.90	3 1/4"
3 1/2"	...	...	6.10	6.30	6.60	6.90	9.00	13.90	16.40	21.60	27.60	3 1/2"
3 3/4"	...	...	...	6.70	7.00	7.30	9.50	14.80	17.40	22.80	29.30	3 3/4"
4 "	...	...	...	7.10	7.40	7.70	10.00	15.70	18.40	24.00	31.00	4 "
4 1/4"	...	...	...	...	...	8.10	10.60	16.70	19.60	25.40	33.00	4 1/4"
4 1/2"	...	...	...	...	...	8.50	11.20	17.70	20.80	26.80	35.00	4 1/2"
4 3/4"	...	...	...	...	...	8.90	11.80	18.70	22.00	28.20	37.00	4 3/4"
5 "	...	...	...	...	...	9.30	12.40	19.70	23.20	29.60	39.00	5 "
5 1/4"	...	...	...	...	...	...	13.00	20.70	24.40	31.00	41.00	5 1/4"
5 1/2"	...	...	...	...	...	...	13.60	21.70	25.60	32.40	43.00	5 1/2"
5 3/4"	...	...	...	...	...	...	14.20	22.70	26.80	33.80	45.00	5 3/4"
6 "	...	...	...	...	...	...	14.80	23.70	28.00	35.20	47.00	6 "
6 1/4"	...	...	...	...	...	...	15.40	24.70	29.20	36.60	49.00	6 1/4"
6 1/2"	...	...	...	...	...	...	16.00	25.70	30.40	38.00	51.00	6 1/2"
6 3/4"	...	...	...	...	...	...	16.60	26.70	31.60	39.40	53.00	6 3/4"
7 "	...	...	...	...	...	...	17.20	27.70	32.80	40.80	55.00	7 "

Diameter, at large end, for Taper Pins smaller than No. 0
No. 2/0 is .141"
No. 3/0 is .125"
No. 4/0 is .109"
No. 5/0 is .094"
No. 6/0 is .078"
No. 7/0 is .0625"

Diameter, at large end, for Taper Pins larger than No. 10
No. 11 is .860"
No. 12 is 1.032"
No. 13 is 1.241"
No. 14 is 1.523"
Prices on application

List Prices for Pins smaller than No. 0 are same as for No. 0 for corresponding lengths.

Prices on application for Taper Pins of Brass, Alloy Steel or Stainless Steel. Give size, length and quantity involved.

All standard Taper Pins are tapered 1/4" per foot, with additional charge for special tapered Pins.

Standard Taper Pins

Gillen Standard Taper Pins have a wide acceptance among critical manufacturers who must have the best. Our Taper Pins are milled from bar stock and are produced with a very fine finish, straight to taper, and to close tolerances. These Pins are carefully boxed and labeled and come with a light coat of rust preventative grease.

Our standard Pin is made from B-1113 steel in sizes No. 7/0 to No. 14, and up to 13" long. We are also able to furnish Taper Pins made from Stainless Steel, Alloy Steel, and Brass.

Due to the uniform accuracy these pins will save considerable time at assembly. We believe when once you have used Gillen Taper Pins you will be satisfied with nothing else.

Special Taper Pins

Precision centerless ground Taper Pins are available in all sizes from all types of material.

Special accuracy turned Taper Pins can be furnished for those fussy applications where cost of centerless grinding is not justified.

Threaded Taper Pins in both external and internal types can be furnished to your specifications.

All special pins are made up to order with prices on application. Samples on request.

APPROXIMATE NET WEIGHT PER 100 PIECES

Length	7/0	6/0	5/0	4/0	3/0	2/0	0	1	2	3	4	5	6	7	8	9	10	Length
1/4	.005	.01	.01	.04	...	...	...	...	...	...	...	...	...	...	...	...	...	1/4
1/2	.020	.05	.07	.11	.14	...	...	...	...	...	...	...	...	...	...	...	...	1/2
3/4	.050	.09	.13	.18	.22	.33	.41	.46	.59	.78	1.08	1.41	2.00	2.81	...	...	...	3/4
1	...	.13	.19	.25	.31	.43	.51	.60	.76	1.02	1.38	1.80	2.58	3.70	5.40	...	...	1
1 1/4	...	...	.25	.32	.40	.52	.60	.74	.92	1.20	1.66	2.19	3.15	4.53	6.63	...	...	1 1/4
1 1/2	...	...	...	.39	.49	.61	.69	.87	1.07	1.43	1.92	2.57	3.70	5.34	7.83	11.6	...	1 1/2
1 3/4	...	...	...	...	.58	.70	.77	.99	1.22	1.63	2.16	2.93	4.23	6.12	8.99	13.3	...	1 3/4
2	...	...	...	...	...	.79	.85	1.08	1.36	1.83	2.40	3.28	4.73	6.88	10.1	15.0	21.8	2
2 1/4	...	...	...	...	...	...	...	1.16	1.49	2.00	2.64	3.64	5.22	7.63	11.2	16.8	24.2	2 1/4
2 1/2	...	...	...	...	...	...	...	1.23	1.61	2.20	2.87	3.98	5.70	8.37	12.3	18.4	26.5	2 1/2
2 3/4	...	...	...	...	...	...	...	1.29	1.72	2.36	3.10	4.32	6.17	9.10	13.4	20.0	28.8	2 3/4
3	...	...	...	...	...	...	...	1.36	1.83	2.50	3.31	4.63	6.61	9.79	14.4	21.5	31.1	3
3 1/4	...	...	...	...	...	...	...	...	...	2.64	3.50	4.90	6.99	10.4	15.5	23.0	33.4	3 1/4
3 1/2	...	...	...	...	...	...	...	...	...	2.78	3.69	5.16	7.36	11.0	16.5	24.5	35.7	3 1/2
3 3/4	...	...	...	...	...	...	...	...	...	...	3.87	5.41	7.72	11.6	17.4	26.0	37.9	3 3/4
4	...	...	...	...	...	...	...	...	...	...	4.02	5.63	8.06	12.1	18.3	27.4	40.1	4
4 1/4	...	...	...	...	...	...	...	...	...	...	...	5.86	8.40	12.7	19.3	28.9	42.2	4 1/4
4 1/2	...	...	...	...	...	...	...	...	...	...	...	6.08	8.73	13.2	20.1	30.3	44.3	4 1/2
4 3/4	...	...	...	...	...	...	...	...	...	...	...	6.29	9.05	13.8	21.0	31.6	46.4	4 3/4
5	...	...	...	...	...	...	...	...	...	...	...	6.49	9.38	14.3	21.9	33.0	48.4	5
5 1/4	...	...	...	...	...	...	...	...	...	...	...	...	9.67	14.8	22.7	34.3	50.4	5 1/4
5 1/2	...	...	...	...	...	...	...	...	...	...	...	...	9.95	15.3	23.5	35.6	52.3	5 1/2
5 3/4	...	...	...	...	...	...	...	...	...	...	...	...	10.2	15.8	24.2	36.9	54.2	5 3/4
6	...	...	...	...	...	...	...	...	...	...	...	...	10.5	16.3	25.0	38.1	56.0	6
6 1/4	...	...	...	...	...	...	...	...	...	...	...	...	...	16.8	25.8	39.3	57.8	6 1/4
6 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...	17.2	26.5	40.4	59.6	6 1/2
6 3/4	...	...	...	...	...	...	...	...	...	...	...	...	...	17.6	27.2	41.5	61.3	6 3/4
7	...	...	...	...	...	...	...	...	...	...	...	...	...	18.0	27.9	42.6	63.0	7
7 1/4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7 1/4
7 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7 1/2
7 3/4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7 3/4
8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8

ADD 10% FOR SHIPPING WEIGHT



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

Table of Drill Sizes for Taper Pins

Number	7/0	6/0	5/0	4/0	3/0	2/0	0	1	2	3	4	5	6	7	8	9	10	11	
Diameter at Large End	.0625	.078	.094	.109	.125	.141	.156	.172	.193	.219	.250	.289	.341	.409	.492	.591	.706	.857	
Length	DIAMETER OF SMALL END OF PIN AND DRILL SIZE																		Length
1/4	.0573 54	.0728 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1/4
3/8	.0547 55	.0702 51	.0862 45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3/8
1/2	.0521 56	.0676 52	.0836 46	.0986 41	.1146 34	.1306 30	.1456 26	.1616 23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1/2
5/8	.0495 56	.0650 52	.0810 44	.0960 38	.1120 32	.1280 28	.1430 24	.1590 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5/8
3/4	.0469 56	.0624 53	.0784 48	.0934 43	.1094 36	.1254 31	.1404 29	.1564 24	.1774 19	.2034 18	.2344 1	.....	.....	.....	.....	.....	.....	.....	3/4
7/8		.0598 54	.0758 49	.0908 43	.1068 37	.1228 31	.1378 29	.1538 25	.1748 18	.2008 9	.2318 1	.....	.....	.....	.....	.....	.....	.....	7/8
1		.0572 54	.0732 50	.0882 44	.1042 38	.1202 32	.1352 26	.1512 20	.1722 19	.1982 10	.2292 2	.2682 G	.3202 O	.....	.....	.....	.....	.....	1
1 1/8				.0856 45	.1016 39	.1176 33	.1326 30	.1486 27	.1696 19	.1956 11	.2266 2	.2656 G	.3176 5/16	.....	.....	.....	.....	.....	1 1/8
1 1/4				.0830 46	.0990 41	.1150 33	.1300 28	.1460 24	.1670 20	.1930 16	.2240 12	.2630 F	.3150 N	.3830 3/8	.....	.....	.....	.....	1 1/4
1 3/8					.0964 36	.1124 30	.1274 24	.1434 20	.1644 16	.1904 12	.2214 8	.2604 F	.3124 N	.3804 3/8	.....	.....	.....	.....	1 3/8
1 1/2					.0938 43	.1098 36	.1248 31	.1408 29	.1618 24	.1878 18	.2188 14	.2578 N	.3098 U	.3778 3/8	.4608 29/64	.....	.....	.....	1 1/2
1 3/4						.1045 38	.1195 32	.1355 28	.1565 24	.1825 16	.2135 4	.2525 D	.3045 19/64	.3725 U	.4555 7/16	.....	.....	.....	1 3/4
2						.0993 41	.1143 34	.1303 26	.1513 20	.1773 16	.2083 12	.2473 C	.2993 M	.3673 23/64	.4503 7/16	.5494 17/32	.....	.....	2
2 1/4							.1251 31	.1461 27	.1721 21	.2031 15	.2421 10	.2941 B	.3621 L	.4451 T	.5442 7/16	.....	.....	.....	2 1/4
2 1/2							.1199 32	.1409 29	.1669 20	.1979 10	.2369 8	.2889 5/16	.3569 3/8	.4399 S	.5390 7/16	.6540 17/32	.....	.....	2 1/2
2 3/4							.1357 30	.1617 24	.1927 18	.2317 12	.2785 8	.3361 5/16	.4087 3/8	.4987 7/16	.6077 17/32	.7559 7/8	.....	.....	2 3/4
3							.1305 30	.1565 24	.1875 18	.2265 12	.2785 8	.3465 R	.4295 27/64	.5285 33/64	.6435 7/8	.7975 25/32	.....	.....	3
3 1/4								.1823 16	.2213 12	.2733 8	.3413 5/16	.4243 3/8	.5233 Z	.6383 7/16	.7923 17/32	.....	.....	.....	3 1/4
3 1/2								.1771 16	.2161 12	.2681 8	.3361 5/16	.4191 3/8	.5181 7/16	.6331 17/32	.7871 7/8	.....	.....	.....	3 1/2
3 3/4									.2629 F	.3309 5/16	.4139 3/8	.5129 7/16	.6279 17/32	.7611 7/8	.....	.....	.....	.....	3 3/4
4												.2577 1/4	.3257 P	.4087 Y	.5077 3/8	.6227 7/16	.7767 17/32	.....	4
4 1/4													.3205 O	.4035 X	.5025 3/8	.6175 7/16	.7715 17/32	.....	4 1/4
4 1/2													.3153 5/16	.3983 3/8	.4973 7/16	.6123 17/32	.7663 7/8	.....	4 1/2
4 3/4														.3931 W	.4921 3/8	.6071 7/16	.7611 17/32	.....	4 3/4
5															.3879 3/8	.4869 15/32	.6019 19/32	.7559 7/8	5
5 1/4																.4817 15/32	.5967 37/64	.7507 47/64	5 1/4
5 1/2																.4765 15/32	.5915 37/64	.7455 47/64	5 1/2
5 3/4																.4713 29/64	.5863 37/64	.7403 47/64	5 3/4
6																.4660 29/64	.5810 37/64	.7350 47/64	6
6 1/4																	.5758 23/32	.7298 29/32	6 1/4
6 1/2																	.5706 23/32	.7246 29/32	6 1/2
6 3/4																	.5654 35/64	.7194 45/64	6 3/4
7																	.5602 35/64	.7142 45/64	7
7 1/4																		.7090 45/64	7 1/4
7 1/2																		.7038 11/16	7 1/2

GILLEN TAPER PINS

Will save you time . . . labor . . . money!



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

Discount on Taper Pins

Effective May 15, 1964

Applies to Price List published December 16th, 1935.

Sizes No. 7/0 to No. 10 inclusive.....	Lots of less than 1000, 14%	discount
Sizes No. 7/0 to No. 10 inclusive.....	Lots of 1000 to 4999, 14-5%	discount
Sizes No. 7/0 to No. 10 inclusive.....	Lots of 5000 to 9999, 14-10%	discount
Sizes No. 7/0 to No. 10 inclusive.....	Lots of 10,000 or more, 14-10-5%	discount

Minimum charge of \$10.00 for any one order.

The above discounts apply to the total accumulated quantity specified on any one order of standard steel taper pins shown on our list price regardless of size.

Intermediate lengths take List Price of next longer standard lengths.

Sizes smaller than No. 0 take the No. 0 List for corresponding lengths.

Lengths over 7", Prices quoted on application giving quantity involved.

Sizes No. 11 to No. 14 inclusive, Prices on application indicating quantity.

Terms: 2% 10 days, 30 days net from the date of invoice or invoices from 1st to 15th of month, payable on 25th of the same month, less cash discount, and invoices from 15th to last of month, payable on 10th of following month, less cash discount.

Prices: F.O.B. Cicero, Ill., with freight allowed on shipments of 100 lbs. or more, not exceeding 65¢ per 100 lbs. or amount actually paid and freight rates equalized with recognized producing or distributing points. No equalization on parcel post or express shipments.

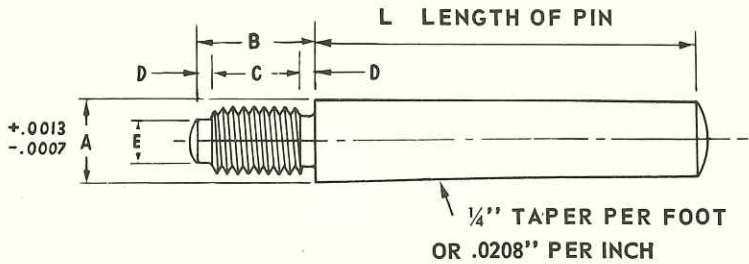
Prices on application for all special taper pins including threaded, centerless ground and those made from Stainless, Monel, Brass, Bronze, Aluminum and Alloy Steels.



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

Gillen Threaded Taper Pin Standard Sheet



Dimensions

Pin Size	Thread	"A"	"B"	"C"	"D"	"E"
0	6-40	.154"	1/4"	5/32"	3/64"	7/64"
1	8-36	.170	1/4	5/32	3/64	1/8
2	10-32	.191	3/8	1/4	1/16	9/64
3	10-32	.217	3/8	1/4	1/16	9/64
4	1/4-28	.248	7/16	5/16	1/16	3/16
5	1/4-28	.287	7/16	5/16	1/16	3/16
6	5/16-24	.339	1/2	11/32	5/64	1/4
7	3/8-24	.407	9/16	13/32	5/64	5/16
8	7/16-20	.490	5/8	7/16	3/32	3/8
9	1/2-20	.589	3/4	9/16	3/32	7/16
10	5/8-18	.704	1	3/4	1/8	1/2
11	3/4-16	.858	1 1/8	7/8	1/8	5/8
12	7/8-14	1.030	1 1/4	1	9/64	3/4

This type of pin is often used as an accurate locating or alignment pin, or for mounting units which require occasional removal or replacement. The pin is especially suited for operations involving blind holes. The thread fits standard nuts, and by turning the nuts, jacking action can be applied to remove the pin from the blind hole.

This pin can be made in sizes below No. 0 to your individual specification.

Standard steel used is B-1113. However, they can be made in other materials including stainless, monel, brass, or alloy and high carbon steels.

Nuts can be furnished if desired.

Ground pins are also available as well as special individual requirements for tolerances.

Other designs of threaded end can be furnished but tooling charge will be made on initial order.

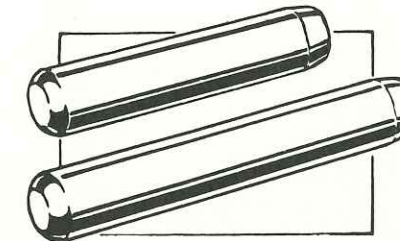
John Gillen Company
SUBSIDIARY OF STANDARD RAILWAY
EQUIPMENT MANUFACTURING COMPANY

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

CONSUMER'S NET PRICES

Hardened and Precision Ground

DOWEL PINS



EFFECTIVE NOVEMBER 15, 1956

STANDARD SIZE PINS FOR NEW PRECISION WORK

These pins are hardened and precision ground .0002" over diameters listed with a tolerance of plus or minus .0001".

PACKAGED WITH BLUE LABEL in quantities per box as indicated.

OVERSIZE PINS FOR REDOWELING ENLARGED HOLES

These pins are hardened and precision ground .001" over diameters listed with a tolerance of plus or minus .0001".

PACKAGED WITH RED LABEL in quantities per box as indicated.

UNLESS OTHERWISE SPECIFIED .0002" OVERSIZE WILL BE FURNISHED.



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

CONSUMER
NET PRICES PER 100

ONE SIZE OR ASSORTED SIZES

DIAM. (Specify First)	LENGTH OVER ALL	NUMBER OF PIECES					PACKAGING	
		1 to 119	120 to 719	720 to 1499	1500 to 2999	3000 and over	No. per Box	App. Wt. per Box (Lbs.)
1/8"	3/8	5.62	4.73	4.29	3.99	3.77	20	.1
	1/2	5.70	4.80	4.35	4.05	3.82	20	.1
	5/8	5.77	4.86	4.40	4.10	3.87	20	.1
	3/4	6.00	5.05	4.58	4.26	4.02	20	.1
	7/8	6.30	5.31	4.81	4.48	4.23	20	.1
	1	6.61	5.56	5.04	4.69	4.43	20	.1
	1-1/8	6.99	5.93	5.33	4.96	4.69	20	.1
	1-1/4	7.37	6.20	5.62	5.23	4.94	20	.1
	1-3/8	7.75	6.52	5.91	5.50	5.20	20	.1
	1-1/2	8.13	6.84	6.20	5.77	5.45	20	.1
	1-3/4	8.89	7.48	6.78	6.31	5.96	20	.1
	2	9.72	8.19	7.42	6.91	6.52	20	.2
3/16"	1/2	6.08	5.12	4.64	4.32	4.08	20	.1
	5/8	6.23	5.24	4.75	4.42	4.18	20	.1
	3/4	6.53	5.50	4.98	4.64	4.38	20	.1
	7/8	6.84	5.76	5.22	4.86	4.59	20	.1
	1	7.22	6.08	5.51	5.13	4.84	20	.2
	1-1/8	7.60	6.40	5.80	5.40	5.10	20	.2
	1-1/4	7.98	6.72	6.09	5.67	5.35	20	.3
	1-3/8	8.40	7.07	6.41	5.97	5.64	20	.3
	1-1/2	8.81	7.42	6.72	6.26	5.91	20	.3
	1-3/4	9.72	8.19	7.42	6.91	6.52	20	.3
	2	10.64	8.96	8.12	7.56	7.14	20	.3
1/4"	1/2	6.76	5.69	5.16	4.80	4.53	20	.2
	5/8	6.91	5.82	5.27	4.91	4.64	20	.2
	3/4	7.22	6.08	5.51	5.13	4.84	20	.2
	7/8	7.60	6.40	5.80	5.40	5.10	20	.3
	1	7.98	6.72	6.09	5.67	5.35	20	.3
	1-1/8	8.40	7.07	6.41	5.97	5.64	20	.3
	1-1/4	8.81	7.42	6.72	6.26	5.91	20	.4
	1-3/8	9.31	7.84	7.10	6.61	6.24	20	.4
	1-1/2	9.80	8.25	7.48	6.96	6.57	20	.4
	1-3/4	10.79	9.08	8.23	7.66	7.24	20	.5
	2	12.00	10.11	9.16	8.53	8.05	20	.6
	2-1/4	13.37	11.26	10.20	9.50	8.97	20	.7
5/16"	1/2	15.04	12.67	11.48	10.69	10.09	20	.7
	5/8	7.60	6.40	5.80	5.40	5.10	20	.3
	3/4	7.82	6.59	5.97	5.56	5.25	20	.3
	7/8	8.13	6.84	6.20	5.77	5.45	20	.4
	1	8.51	7.16	6.49	6.04	5.71	20	.4
	1-1/8	8.89	7.48	6.78	6.31	5.96	20	.4
	1-1/4	9.47	7.93	7.19	6.69	6.32	20	.5
	1-3/8	9.95	8.38	7.59	7.07	6.68	20	.6
	1-1/2	10.54	8.83	8.00	7.45	7.00	20	.7
	1-3/4	11.02	9.28	8.41	7.83	7.39	20	.7
	2	12.31	10.36	9.39	8.74	8.26	20	.8
	2-1/4	13.60	11.45	10.38	9.66	9.12	20	.9
3/8"	1/2	15.04	12.67	11.48	10.69	10.09	20	1.0
	5/8	16.72	14.08	12.76	11.88	11.22	20	1.1
	3/4	18.39	15.48	14.04	13.08	12.34	20	1.2
	7/8	20.06	16.89	15.31	14.25	13.46	20	1.3
	1	8.58	7.23	6.55	6.10	5.76	20	.4
	5/8	8.89	7.48	6.78	6.31	5.96	20	.4
	3/4	9.27	7.80	7.07	6.58	6.22	20	.5
	7/8	9.65	8.12	7.36	6.85	6.47	20	.5
	1	10.03	8.44	7.65	7.12	6.73	20	.6
	1-1/4	11.09	9.34	8.46	7.88	7.44	20	.8
	1-3/8	11.87	9.93	9.02	8.40	7.93	20	.9
	1-1/2	12.54	10.56	9.57	8.91	8.41	20	1.0
7/8"	1-3/4	13.98	11.77	10.67	9.93	9.38	20	1.1
	2	15.42	12.99	11.77	10.96	10.35	20	1.3
	2-1/4	16.94	14.27	12.93	12.04	11.37	20	1.4
	2-1/2	18.62	15.68	14.21	13.23	12.49	20	1.6
	2-3/4	20.33	17.12	15.53	14.47	13.64	20	1.7
	3	22.04	18.56	16.82	15.66	14.79	20	1.9

ONE SIZE OR ASSORTED SIZES

CONSUMER
NET PRICES PER 100

DIAM. (Specify First)	LENGTH OVER ALL	NUMBER OF PIECES					PACKAGING	
		1 to 119	120 to 719	720 to 1499	1500 to 2999	3000 and over	No. per Box	App. Wt. per Box (Lbs.)
7/16"	7/8	15.77	13.33	12.12	11.28	10.75	20	.8
	1	17.25	14.52	13.16	12.25	11.57	20	.9
	1-1/4	18.69	15.74	14.26	13.28	12.54	20	1.1
	1-1/2	20.14	16.96	15.37	14.31	13.51	20	1.3
	1-3/4	21.58	18.17	16.47	15.33	14.48	20	1.5
	2	23.33	19.64	17.80	16.57	15.65	20	1.8
	2-1/4	25.50	21.47	19.46	18.11	17.11	20	2.0
	2-1/2	27.66	23.29	21.11	19.65	18.56	20	2.2
	2-3/4	30.63	25.37	23.00	21.41	20.22	20	2.4
	3	32.60	27.45	24.88	23.16	21.87	20	2.6
1/2"	3/4	17.63	14.84	13.45	12.52	11.83	20	.9
	1	19.07	16.06	14.55	13.55	12.80	20	1.2
	1-1/4	20.52	17.28	15.66	14.58	13.77	20	1.4
	1-1/2	21.96	18.49	16.76	15.60	14.73	20	1.7
	1-3/4	23.40	19.71	17.86	16.63	15.70	20	2.0
	2	25.15	21.18	19.19	17.87	16.88	20	2.3
	2-1/4	27.28	22.97	20.82	19.38	18.30	20	2.6
	2-1/2	29.86	25.15	22.79	21.22	20.04	20	2.8
	2-3/4	32.79	27.62	25.03	23.30	22.01	20	3.1
	3	35.72	30.08	27.26	25.38	23.97	20	3.4
	3-1/4	39.02	32.86	29.78	27.73	26.19	20	3.7
	3-1/2	42.33	35.64	32.30	30.07	28.40	20	4.0
	3-3/4	45.75	38.52	34.91	32.50	31.20	20	4.3
5/8"	4	49.17	41.40	37.52	34.93	32.99	20	4.6
	1	26.60	22.40	20.30	18.90	17.85	10	.9
	1-1/4	28.88	24.32	22.04	20.52	19.38	10	1.1
	1-1/2	31.16	26.24	23.78	22.14	20.91	10	1.3
	1-3/4	33.59	28.28	25.63	23.86	22.54	10	1.6
	2	36.40	30.65	27.78	25.86	24.42	10	1.8
	2-1/4	39.36	33.15	30.04	27.97	26.41	10	2.0
	2-1/2	42.63	35.90	32.53	30.29	28.61	10	2.2
	2-3/4	46.81	36.22	35.92	33.26	31.42	10	2.4
	3	50.99	42.94	38.91	36.23	34.22	10	2.7
	3-1/4	55.17	46.46	42.10	39.20	37.03	10	2.9
	3-1/2	59.35	49.98	45.29	42.17	39.83	10	3.1
	3-3/4	63.95	53.85	48.80	45.44	42.92	10	3.4
3/4"	4	68.55	57.72	52.31	48.70	46.00	10	3.6
	4-1/2	77.74	65.47	59.33	55.24	52.17	10	4.0
	5	89.45	75.32	68.26	63.55	60.02	10	4.4
	1-1/2	48.84	40.70	35.75	33.22	31.46	10	1.8
	2	50.23	42.30	38.33	35.69	33.71	10	2.5
	2-1/4	54.45	45.82	42.52	38.66	36.53	10	2.9
	2-1/2	58.59	49.34	44.71	41.63	39.32	10	3.2
	2-3/4	65.66	55.29	50.11	46.65	44.06	10	3.5
	3	72.73	61.24	55.50	51.67	48.80	10	3.8
	3-1/4	79.35	67.24	61.43	56.72	53.57	10	4.1
	3-1/2	86.94	73.21	66.35	61.77	58.34	10	4.4
	3-3/4	94.05	79.21	71.77	66.82	63.11	10	4.9
7/8"	4	101.15	85.18	77.19	71.87	67.88	10	5.1
	4-1/2	116.20	97.85	88.68	82.56	77.97	10	5.6
	5	131.25	110.52	100.16	93.25	88.07	10	6.5
	6	161.34	135.87	123.13	114.64	108.27	10	7.8
	2	75.24	63.36	57.42	53.46	50.49	10	3.5
	2-1/2	84.43	71.10	64.43	59.99	56.66	10	4.4
	3	98.64	83.07	75.28	70.09	66.19	10	5.3
	3-1/2	113.69	95.74	86.76	80.78	76.29	10	6.2
	4	128.74	108.41	98.25	91.47	86.39	10	6.9
	4-1/2	143.79	121.08	109.73	102.16	96.49	10	7.9
	5	158.84	133.76	121.22	112.86	106.59	10	8.8
	6	193.95	163.32	148.01	137.80	130.15	10	10.4
1"	2	99.48	83.77	75.92	70.68	66.75	10	4.5
	2-1/2	109.51	92.22	83.57	77.81	73.49	10	5.7
	3	124.56	104.89	95.06	88.50	83.58	10	6.8
	3-1/2	140.44	118.27	107.18	99.79	94.24	10	8.0
	4	162.18	136.57	123.77	115.23	108.83	10	9.2
	4-1/2	183.92	154.88	140.36	130.68	123.42	10	10.2
	5	205.65	173.18	156.94	146.12	138.00	10	11.3
	6	250.80	211.20	191.40	178.20	168.30	10	13.5

CONSUMER
NET BULK PRICES PER 1000

Prices apply to all standard diameters, 1/8" to 1" inclusive, ONE SIZE ONLY

DIAM. (Specify 1st)	LENGTH Over All	Net Bulk Prices Per 1000		DIAM. (Specify 1st)	LENGTH Over All	Net Bulk Prices Per 1000		DIAM. (Specify 1st)	LENGTH Over All	Net Bulk Prices Per 1000		DIAM. (Specify 1st)	LENGTH Over All	Net Bulk Prices Per 1000	
		5,000 to 9,999	10,000 to 24,999			5,000 to 9,999	10,000 to 24,999			5,000 to 9,999	10,000 to 24,999			5,000 to 9,999	10,000 to 24,999
1/8"	3/8	27.30	24.40	1/4"	2	58.40	52.10	7/16"	7/8	79.50	71.80	5/8"	3-1/2	288.90	257.70
	1/2	27.70	24.70		2-1/4	65.10	58.00		1	83.90	74.90		3-3/4	311.30	277.60
	5/8	28.10	25.00		2-1/2	73.20	65.30		1-1/4	91.00	81.10		4	333.70	297.60
	3/4	29.20	26.00						1-1/2	98.00	87.40		4-1/2	378.50	337.50
	7/8	30.70	27.30						1-3/4	105.00	93.70		5	435.40	338.40
	1	32.10	28.70		1/2	37.00	33.00		2	113.50	101.30		1-1/2	238.30	213.20
	1-1/8	34.00	30.40		5/8	38.10	33.90		2-1/4	124.00	110.70		2	244.50	218.10
	1-1/4	35.80	32.00		3/4	39.50	35.30		2-1/2	134.60	120.10		2-1/4	264.90	236.30
	1-3/8	37.70	34.70		7/8	41.40	36.90		2-3/4	146.00	130.80		2-1/2	285.20	254.40
	1-1/2	39.50	35.30		1	43.20	38.60		3	158.70	141.50		2-3/4	319.60	285.10
	1-3/4	43.20	38.60		1-1/8	45.80	40.90						3	354.00	315.80
	2	47.30	42.20		1-1/4	48.40	43.20		3/4	85.80	76.50		3-1/4	388.60	346.70
3/16"	1/2	29.60	26.40	5/16"	1-1/4	51.00	45.50	1/2"	1	92.80	82.80	3/4"	3-1/2	423.20	377.50
	5/8	30.30	27.00		1-3/8	53.60	47.80		1-1/4	99.90	89.10		3-3/4	457.80	408.40
	3/4	31.80	28.30		1-1/2	59.90	53.40		1-1/2	106.90	95.30		4	492.40	439.20
	7/8	33.30	29.70		2	62.20	59.00		1-3/4	113.90	101.60		4-1/2	565.70	504.50
	1	35.10	31.30		2-1/4	73.20	65.30		2	122.40	109.20		5	638.90	569.90
	1-1/8	37.00	33.00		2-1/2	81.40	72.60		2-1/4	132.80	118.40		6	785.50	700.50
	1-1/4	38.80	34.60		2-3/4	84.50	74.90		2-1/2	145.40	129.60				
	1-3/8	40.80	36.40		3	97.60	87.10		2-3/4	159.70	142.40		2	366.30	326.70
	1-1/2	42.90	38.20						3	173.90	155.10		2-1/2	411.00	366.60
	1-3/4	47.30	42.20		1/2	41.80	37.20		3-1/4	190.00	169.50		3	480.20	428.30
	2	51.80	46.20		5/8	43.20	38.60		3-1/2	206.00	183.80		3-1/2	553.50	493.60
					3/4	45.10	40.20		3-3/4	222.70	198.70		4	626.70	559.00
1/4"	1/2	32.90	29.30	3/8"	7/8	46.90	41.90	5/8"	4	239.20	213.50	1"	4-1/2	700.00	624.30
	5/8	33.60	30.00		1	48.80	43.50						5	773.30	689.70
	3/4	35.10	31.30		1-1/4	54.00	48.10		1	129.50	115.50		6	944.20	842.10
	7/8	37.00	33.00		1-3/8	57.50	51.30		1-1/4	140.60	125.40				
	1	38.80	34.60		1-1/2	61.00	54.40		1-1/2	151.70	135.30		2	484.30	431.90
	1-1/8	40.80	36.40		1-3/4	68.00	60.70		1-3/4	163.50	145.80		2-1/2	533.10	475.50
	1-1/4	42.90	38.70		2	75.10	66.90		2	177.20	158.00		3	606.40	540.80
	1-3/8	45.30	40.40		2-1/4	82.50	73.50		2-1/4	191.60	170.90		3-1/2	683.70	609.80
	1-1/2	47.70	42.50		2-1/2	90.60	80.80		2-1/2	207.50	185.10		4	789.50	704.20
	1-3/4	52.50	46.80		2-3/4	99.00	88.30		2-3/4	227.90	203.30		4-1/2	895.40	798.60
					3	107.30	95.70		3	248.20	221.40		5	1001.20	892.90
									3-1/4	268.60	239.60		6	1221.00	1089.00

All pins packaged unless otherwise specified

Special sizes other than those listed can be furnished. Prices on application.

Minimum charge of \$10.00 for any one order.

TERMS: 2% 10 days, 30 days net from the date of invoice or invoices from 1st to 15th of month, payable on 25th of the same month, less cash discount, and invoices from 15th to last of month, payable on 10th of following month, less cash discount.

PRICES: F.O.B. Cicero, Ill., with freight allowed on shipments of 100 lbs. or more, not exceeding 65¢ per 100 lbs. or amount actually paid and freight rates equalized with recognized producing or distributing points. No equalization on parcel post or express shipments.



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO, ILLINOIS 60650

Catalog
and
Specifications

Groove Pins

Home of Gillen Quality

MACHINE KEYS
WOODRUFF KEYS
GILLEN GROOVE PINS
TAPER PINS
DOWEL PINS
PIVOT PINS
TENSION PINS
TENSION BUSHES



JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE • CICERO 50, ILL.

gillen GROOVE PIN

The Gillen Groove Pin is a device for hinging, pinning or fastening machine parts, and has an important place in the fastening field along with our other key and pin products.

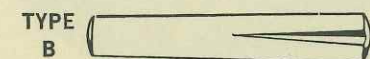
The principle of the Gillen Groove Pin involves the use of a pin which has been expanded by three longitudinal grooves. This expanded pin, when driven into a straight drilled hole of comparable diameter, tends to reform to the diameter of the hole thus creating the necessary holding pressure. This pressure, which

securely locks the two machine parts together permanently, is controlled by holding the expansion within several thousandths. The pin has enough elasticity to be driven from the hole and may be re-used without damage to the hole or to the Groove Pin.

Standard Gillen Groove Pins are made of either B-1112 or C-1010 steel and zinc plated. Other metals such as stainless steel, alloy steel, monel metal or brass can be furnished. Nine different types are available as shown below:



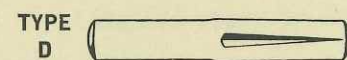
TYPE A
Three tapered grooves along the full length of the pin.



TYPE B
Three tapered grooves for one-half the length of the pin.



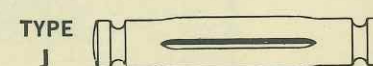
TYPE C
Three straight grooves for the full length of the pin with starting pilot.



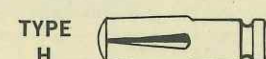
TYPE D
Three reverse tapered grooves for one-half the length of the pin.



TYPE E
Three center grooves covering one-half of the length of the pin.



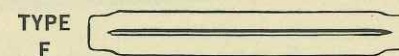
TYPE J
Three center grooves with annular grooves at each end.



TYPE H
Three half length reverse taper grooves with annular groove at end.



TYPE G
Three half length tapered grooves with annular groove at end.



TYPE F
Three straight grooves for full length of pin with starting pilot on both ends.

The Gillen Groove Pin is a time-saving, economical and practical method of securely fastening together two component machine parts. Note the special features.

- Installation or re-use will not damage assembled parts or pins.
- Zinc plated for rust prevention.
- Neat assembled appearance.

- Use drill hole only—tapering or threading of hole unnecessary.
- Low cost—ease of assembly.
- Will not loosen with shock or vibration.

GILLEN GROOVE PIN SPECIFICATIONS

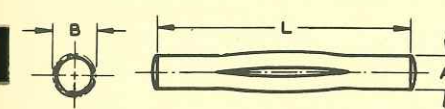
	Nominal Size	3/64	1/16	5/64	3/32	7/64	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
A	Maximum Diameter	.0469	.0625	.0781	.0938	.1094	.1250	.1563	.1875	.2188	.2500	.3125	.3750	.4375	.5000
	Minimum Diameter	.0459	.0615	.0771	.0928	.1084	.1230	.1543	.1855	.2168	.2480	.3105	.3730	.4355	.4980
	Maximum Recom. Hole	.0478	.0640	.0798	.0956	.1113	.1271	.1587	.1903	.2219	.2534	.3166	.3797	.4428	.5060
	Minimum Recom. Hole	.0465	.0625	.0781	.0938	.1094	.1250	.1563	.1875	.2188	.2500	.3125	.3750	.4375	.5000

TYPE A 3/64 to 1/2 dia.

C 3/64 to 1/2 dia.

F 3/64 to 1/2 dia.

J 1/8 to 1/2 dia.



A = Nominal diameter and recommended drill size

Type J minimum diameter is 1/8"

TYPE B 3/64 to 1/2 dia.

D 3/64 to 1/2 dia.

E 3/64 to 1/2 dia. (illustrated above.)

G 3/16 to 1/2 dia.

H 3/16 to 1/2 dia.

Minimum diameter types
G and H is 3/16"
and length is 5/8"

On sizes up to and including 1/4" diameter, pins are furnished with square ends with a .010"-.020" radius on edges to insure easy insertion. Larger diameters are furnished with crowned ends.

TABLE 1

A →	3/64	1/16	5/64	3/32	7/64	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
L ↓*	.047	.0625	.0781	.0938	.1094	.1250	.1563	.1875	.2188	.2500	.3125	.3750	.4375	.5000
EXPANDED DIAMETER B														
1/4	.051	.068	.084	.101	.117	.134	.166	.198						
3/8	.051	.068	.084	.101	.117	.134	.166	.198						
1/2	.051	.068	.084	.101	.117	.134	.166	.198	.230	.263				
5/8	.051	.068	.084	.101	.117	.134	.166	.198	.230	.263	.329			
3/4		.068	.084	.101	.116	.134	.166	.198	.230	.263	.329	.394		
7/8		.068	.084	.101	.116	.133	.165	.198	.230	.263	.329	.394	.459	
1			.068	.084	.101	.115	.133	.165	.198	.230	.263	.329	.394	.525
1 1/4					.101	.115	.132	.164	.197	.230	.263	.329	.394	.525
1 1/2							.132	.164	.197	.229	.262	.329	.394	.525
1 3/4								.163	.197	.229	.262	.328	.393	.525
2								.163	.196	.229	.262	.328	.393	.525
2 1/4									.196	.229	.262	.328	.393	.524
2 1/2										.228	.261	.327	.393	.524
2 3/4										.228	.261	.327	.393	.524
3										.227	.260	.327	.392	.523
3 1/4											.260	.326	.392	.523
3 1/2												.326	.391	.522

TABLE 2

A →	3/64	1/16	5/64	3/32	7/64	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
L ↓*	.047	.0625	.0781	.0938	.1094	.1250	.1563	.1875	.2188	.2500	.3125	.3750	.4375	.5000
EXPANDED DIAMETER B														
1/4	.051	.068	.084	.101	.117	.134	.166	.198						
3/8	.051	.068	.084	.101	.117	.134	.166	.198						
1/2	.051	.068	.084	.101	.117	.134	.166	.198	.230	.263				
5/8	.051	.068	.084	.101	.117	.134	.166	.198	.230	.263	.329			
3/4		.068	.084	.101	.117	.134	.166	.198	.230	.263	.329	.394		
7/8		.068	.084	.101	.117	.134	.166	.198	.230	.263	.329	.394	.459	
1			.068	.084	.101	.117	.134	.166	.198	.230	.263	.329	.394	.525
1 1/4					.101	.117	.134	.166	.198	.230	.263	.329	.394	.525
1 1/2							.134	.166	.198	.230	.263	.329	.394	.525
1 3/4								.166	.198	.230	.263	.329	.394	.525
2								.165	.198	.230	.263	.329	.394	.525
2 1/4									.197	.230	.263	.329	.394	.525
2 1/2										.230	.263	.329	.394	.525
2 3/4										.229	.262	.329	.394	.525
3										.229	.262	.329	.394	.525
3 1/4											.262	.328	.393	.525
3 1/2												.262	.328	.525

TOLERANCES:

On Nominal Diameter "A"

+ .000 — .001 up to 1/8" diameter

+ .000 — .002 1/8" and above

On Expanded Diameter "B"

± .001 up to 1/8" diameter

± .002 1/8" and above

NOTE: The expanded diameter "B" must be

determined only with ring gauges.

Expanded diameters shown apply to standard B1112 steel pins.

Maximum expansion may be less in pins of certain special materials.

On Overall Length "L" ± .010



Note that the pin is not perfectly circular before inserting. When pin is inserted, three grooves are compressed, at three points, forming a perfect fit, and uniform locking action. This compressibility keeps pin secure at all times. Standard Gillen Groove Pins made from B-1112 and C-1010 steel, and furnished zinc plated. Special Pins available from other types of metal; or plated as specified.

TYPICAL USES

- Locating or Dowel Pins for Motor Bases or Pillow Blocks
- Fastening Pins for Gears or Gear Trains
- Replacement Cotter Pins, Hinge Pins, Stop Pins, Clevis Pins
- Yoke Pins for Fastening Pulleys, Gears, Collars, Cams, to Shafts

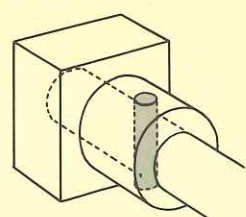
ADVANTAGES

- Economical
- Good Assembled Appearance
- Faster Production
- Will not Shear or Loosen with Vibration
- No Reaming, Tapering, Threading required. Just drill the hole, insert the pin. Gillen Pins can be joining or operating members permitting free movement of one or more parts.

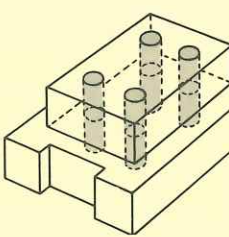
Write for Samples:
Specify approximate size of pin and anticipated use. We will be happy to work with you in the design and production stages, supplying samples, prices, engineering data. No obligation.

CHECK THESE FACTS

Here's a positive, simple, fast method of fastening component parts together for permanent or temporary use. Simply drill the hole and insert the pin. Gillen Groove Pins make clean, quick assemblies with good appearance.



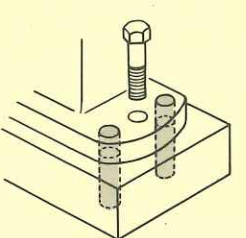
GILLEN GROOVE PINS HELP LOWER COSTS



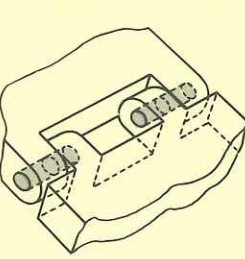
Three longitudinal grooves, full or half length expand the pin. When pin is inserted into straight drilled hole, it re-forms to the wall of the hole for contact, creating holding pressure at every point of hole circumference.

GILLEN GROOVE PINS HOLD PARTS TIGHT

End of Gillen Groove Pin makes neat assembled appearance. Elasticity of metal in pin permits removal without damage to the work or the pin. Use them for locating; or for permanent assemblies; for permitting one or more free-moving members.



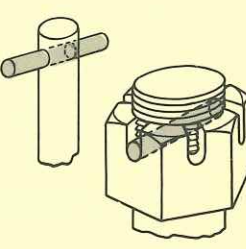
GILLEN GROOVE PINS SAVE ASSEMBLY TIME



Shock or vibration will not loosen or shear the Gillen Pin even under severe operating conditions. Provides a wide range of fastening uses possible on light or heavy units. Investigate Gillen Groove Pins for solving production fastening problems.

GILLEN GROOVE PINS SERVE TWO PURPOSES

The prime anchoring feature of a Gillen Groove Pin is the longitudinal (3) compressible grooves, full or half length. The 9 standard types are adaptable to nearly every type of pinning operation on countless types of industrial and consumer products.



Gillen GROOVE PIN PRICE LIST PER 100

October 20, 1958

Nominal Diameter	3/64	1/16	5/64	3/32	7/64	1/8	5/32	11/64	3/16	7/32	1/4	5/16	3/8	7/16	1/2
DRILL SIZE	56	1/16	5/64	3/32	7/64	1/8	5/32	11/64	3/16	7/32	1/4	5/16	3/8	7/16	1/2
Decimal Equivalent	.0469	.0625	.0781	.0938	.1094	.1250	.1563	.1719	.1875	.2188	.2500	.3125	.3750	.4375	.5000
LENGTH	1/4	1.15	1.15	1.15	1.25	1.35	1.40								
	3/8	1.20	1.20	1.20	1.30	1.40	1.45	1.90	2.10	2.25					
	1/2	1.25	1.25	1.25	1.35	1.45	1.50	1.95	2.20	2.35	2.80	3.05			
	5/8	1.30	1.30	1.30	1.40	1.50	1.65	2.05	2.30	2.50	2.95	3.15	3.95		
	3/4		1.35	1.35	1.45	1.55	1.75	2.20	2.45	2.65	3.10	3.30	4.05	5.05	
	7/8		1.40	1.40	1.50	1.65	1.90	2.35	2.65	2.90	3.25	3.45	4.20	5.35	6.20
	1			1.45	1.55	1.70	2.10	2.50	2.85	3.10	3.45	3.65	4.50	5.65	6.55
	1 1/4				1.65	1.75	2.30	2.75	3.05	3.35	3.65	3.95	4.80	6.00	7.00
	1 1/2						2.50	3.00	3.35	3.60	3.95	4.20	5.10	6.40	7.50
	1 3/4							3.30	3.65	3.85	4.25	4.50	5.50	6.85	8.05
	2							3.60	4.00	4.20	4.55	4.80	5.90	7.30	8.60
	2 1/4									4.55	4.85	5.15	6.35	7.85	9.10
	2 1/2										5.20	5.50	6.80	8.40	9.80
	2 3/4										5.55	5.90	7.30	9.00	10.40
	3										5.90	6.40	7.80	9.60	11.15
	3 1/4											6.90	8.30	10.30	11.90

Above list covers types A, B, C, D, E, F, Type F with double end pilot design is well adapted to hopper feed assembly.

Intermediate Lengths take list price of next longer standard length. For types G, H and J, add 20% to above list prices. Prices for special pins on application.

QUANTITY DISCOUNTS ON STANDARD GILLEN GROOVE PINS

Effective October 20, 1958

Sizes up to and including 1/8" diameter:	Sizes from 5/32" diameter up to and including 3/8" diameter:	Sizes 7/16" diameter and larger:
Up to 499. List Price	Up to 499. List Price	Up to 499. List Price
500 to 999 40%	500 to 999 40%	500 to 999 40%
1,000 to 4,999 65%	1,000 to 4,999 65%	1,000 or more 60%
5,000 to 9,999 70%	5,000 to 9,999 70%	
10,000 to 49,999 75%	10,000 or more 75%	
50,000 or more 80%		

Discounts are based upon quantity of each individual item ordered.
Minimum charge of \$10.00 on any one order.
TERMS: 1% 10 days, 30 days net from the date of invoice or invoices from 1st to 15th of month, payable on 25th of same month less cash discount and invoices from 15th to last of month, payable on 10th of following month, less cash discount.
Prices are f.o.b. Cicero, Illinois.

JOHN GILLEN COMPANY
subsidiary of STANRAY CORPORATION

2540 SOUTH 50th AVENUE · CICERO, ILL. 60650

Gillen Cost-Cutting TENSION PINS



**offering design
simplification,**

**assembly time
savings,**

and economy

A fastening device designed to replace cotter pins,
dowel pins, split pins, set screws, rivets, and as-
sembly bolts in hundreds of industrial applications.

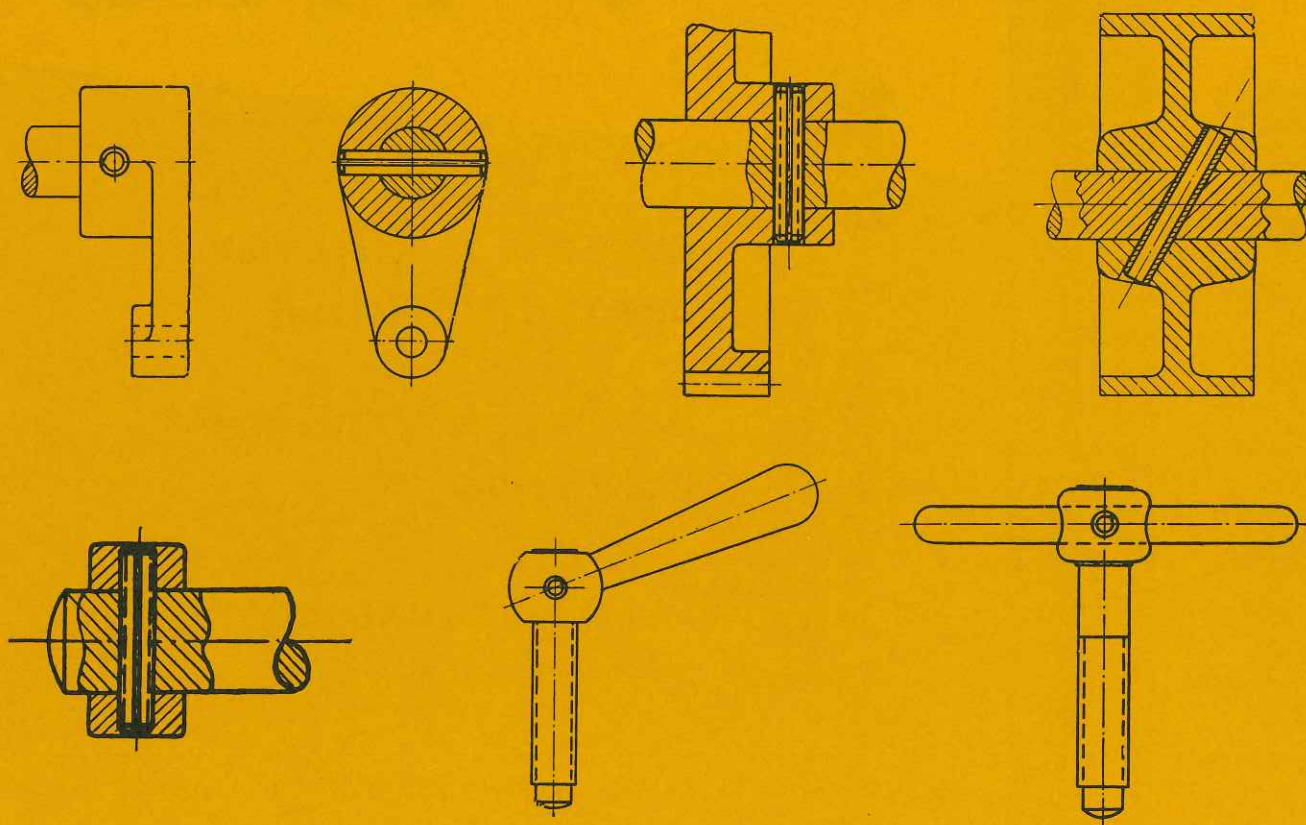


JOHN GILLEN COMPANY
subsidiary of **STANRAY CORPORATION**

Keying and Pinning Devices

2540 SOUTH 50th AVENUE, CICERO, ILLINOIS 60650

GILLEN TENSION PINS



Hole, Drilled only
No reaming or tapping

Drive in with hammer
chamfered ends
make starting easy

Pin in position

Removal in any direction
with hammer and drift
without damage to hole
or pin. The pin can be
used again and again.

What they are

Self-retaining tension pins are made of highly elastic special spring steel, cold-rolled, hardened and tempered. Hollow and slotted lengthwise to create tension, they're light in weight. The outside diameter before insertion is larger by a predetermined amount than the bore of the hole in which the tension pin is to be pressed. Compressed as they are driven in the hole, the spring steel exerts pressure on the walls of the hole which holds the pins tightly in place and absorbs vibration without loosening.

Machined chamfered ends make driving simple. Expensive tapping, reaming and milling is eliminated — only a drilled hole to normal production tolerance is required. They are self fitting in varying size holes and in out of alignment applications.

Where you use them

TENSION PINS — 40% lighter than solid pins, yet exceptionally strong, they are particularly suitable for fastening component machine parts under conditions of intermittent shear stress. Designed to withstand high shock loads, they are recommended for the fastening of gears, levers and cranks to steel shafts and many other pinning applications. The parts to be connected may be steel, cast iron, lightweight alloys, porcelain and plastics.

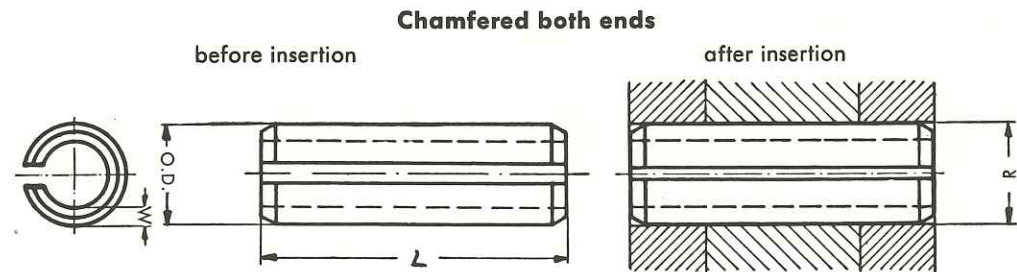
COMBINED TENSION PINS — One pin may be slipped inside another for applications involving high shear stress or heavy shock loads. The slots should be arranged at 90 or 180 degrees to each other.

Tension pins are used throughout the appliance, railroad, automotive, construction, farm, electronic and general equipment industries to simplify design and reduce assembly costs.

How Gillen Tension Pins are applied

Machined chamfered ends for easy insertion, tension pins are simply tapped or driven into a bored hole by hand or machine. Pins can be easily removed, reused and replaced in maintenance.

GILLEN TENSION PIN SPECIFICATION



Nominal Diameter	O.D. Diameter Before Insertion		W Wall Thickness	R Recommended Hole Size		Min. Double Shear Strength In Pounds
	max.	min.	Standard Pin	min.	max.	
1/16"	.069"	.066"	.012"	.062"	.065"	425
5/64"	.086"	.083"	.018"	.078"	.081"	650
3/32"	.103"	.099"	.022"	.094"	.097"	1,000
1/8"	.135"	.131"	.028"	.125"	.129"	2,100
5/32"	.167"	.162"	.032"	.156"	.160"	3,000
3/16"	.199"	.194"	.042"	.187"	.192"	4,400
7/32"	.232"	.226"	.050"	.219"	.224"	5,700
1/4"	.264"	.258"	.050"	.250"	.256"	7,700
5/16"	.328"	.321"	.062"	.312"	.318"	11,500
3/8"	.392"	.385"	.077"	.375"	.382"	17,600
7/16"	.456"	.448"	.077"	.437"	.445"	20,000
1/2"	.521"	.513"	.094"	.500"	.510"	25,800

All intermediate as well as larger diameters can be supplied on request

Finish: Oil blued

Material: Special Spring Steel

Length-Tolerances: .187 to 1.000 ± .015

1.001 to 2.000 ± .020

2.001 to 3.000 ± .025

3.001 to 4.000 ± .030

4.001 — Over ± .040

Specification:

Carbon .52 — .57

Manganese .57 — .61

Silicon 1.70 — 1.75

Sulphur max. 0.020

Phosphorus max. 0.018

Hardness: Rockwell "C" 46 — 53

Standard Gillen Tension Pins conform to Composition D of government specification MIL-P-10971-C dated 31 December 1964.

Gillen Tension Pin Price List Per 1000

Nominal Diameter	1/16	5/64	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2
3/16	4.70*	4.70										
1/4	4.80*	4.80*	5.10*									
5/16	4.90*	4.90*	5.20*									
3/8	5.00*	5.00*	5.30*	5.90*								
7/16	5.10*	5.10*	5.40*	6.10*	8.50							
1/2	5.20*	5.20*	5.50*	6.30*	8.80*	11.10*	12.90	15.40*				
9/16	5.30*	5.30*	5.60*	6.50*	9.10*	11.40*	13.30	15.90				
5/8	5.40*	5.40*	5.70*	6.70*	9.40*	11.70*	13.70	16.40*				
11/16	5.50*	5.50*	5.80*	6.90*	9.70*	12.00*	14.10	16.90				
3/4	5.60*	5.60*	5.90*	7.10*	10.00*	12.30*	14.60*	17.40*	20.60*	24.00*		
13/16	5.70	5.70*	6.00*	7.40*	10.30*	12.70*	15.10	17.90	21.40			
7/8	5.80*	5.80*	6.10*	7.70*	10.60*	13.10*	15.60*	18.40*	22.20	26.75*		
15/16	5.90	5.90*	6.20*	8.00*	10.90*	13.50*	16.10	18.90	23.00			
1	6.00*	6.00*	6.30*	8.30*	11.20*	13.90*	16.60*	19.50*	23.80*	29.50*	37.40	41.50*
1 1/8		6.20*	6.50*	9.00*	11.50*	14.70*	17.30*	20.60*	24.60	32.25*		
1 1/4		6.50*	6.80*	9.70*	12.40*	15.60*	18.40*	21.70*	26.30*	35.00*	43.80	49.60*
1 3/8		6.80*	7.10*	10.40*	13.30*	16.50*	19.50*	22.80*	28.00*	37.75*		
1 1/2		7.10*	7.40*	11.10*	14.20*	17.40*	21.00*	23.90*	29.70*	40.50*	50.20	57.70*
1 5/8				11.80*	15.10*	18.30*	21.50*	25.00*	31.40*	43.25*		
1 3/4				12.50*	16.00*	19.20*	23.00*	26.10*	33.50*	46.00*	56.60	65.80*
1 7/8				13.20	16.90*	20.10*	24.50*	27.40*	35.60*	48.75*		
2				13.90*	17.80*	21.00*	26.00*	28.70*	37.70*	51.50*	63.00	75.50*
2 1/4					18.70	22.80*	29.00*	31.30*	41.90*	57.70*	69.40	85.20*
2 1/2					19.60*	24.60*	32.00*	33.90*	46.10*	63.90*	76.50	94.90*
2 3/4							35.00	36.50*	50.90*	70.10*	83.60	106.40*
3							38.00	39.10*	55.70*	76.30*	90.70	117.90*
3 1/4								41.70*	60.70*	82.50*	97.80	129.40*
3 1/2								44.30*	65.70*	88.70*	104.90	140.90*
3 3/4									70.70*	94.90*	112.00	152.40*
4									75.70*	101.10*	119.10	163.90*

*Items normally available from stock

Effective September 1, 1959

Quantity Discounts on Standard Gillen Tension Pins

Less than 5,000	List Net
5,000 to 9,999	20 %
10,000 to 49,999	30 %
50,000 to 99,999	40 %
100,000 and over	50 %

Various stock items may be combined on one order in quantities exceeding 1000 pieces per item to obtain maximum discount applicable.

F.O.B. — Cicero, Ill. with freight allowed based on lowest rate available. Premium routing differential at customer's expense.

Minimum charge — \$10.00 on any one order.

Terms — 1/2 of 1 %, 10 days, net 30 days from date of invoice or invoices from 1st to 15th of month, payable on 25th of same month less cash discount and invoices from 15th to last of month, payable on 10th of following month, less cash discount.

Set up charge of \$15.00 for each order for non-standard lengths will apply for quantities less than 10,000 pieces per size.

Larger sizes available, prices on application.

for price
and shipping information,
write



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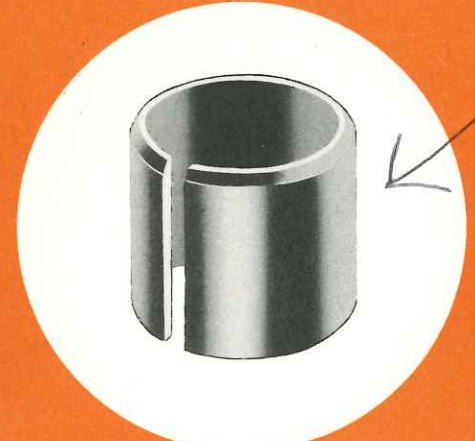
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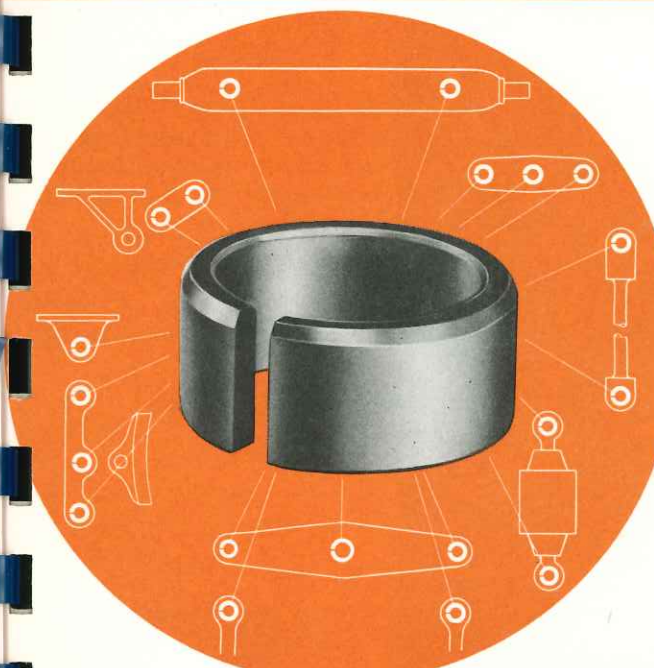


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TENSION BUSHINGS

What they are

Tension Bushings are similar to conventional solid steel bushings, but are slotted along their full length to permit compression and expansion. They are formed from special spring steel of high elasticity and great wear resistance. They are chamfered internally and externally at one or both ends. After being machined to size, they are hardened and tempered. The inside diameter surface is comparable to a burnished finish.

How they work

For internal applications, Tension Bushings are made to a pre-determined, oversize diameter. After insertion, the compressed bushing conforms to the hole diameter and is held securely in place under tension. The width of the slot and the amount of chamfer are related to the diameter and the wall thickness of the required bushing. The chamfer is sufficient to insure ease of initial insertion and proper alignment. The slot will remain open a minimum of .010" after insertion to insure maximum holding tension. Where practical, the slot should be located away from the direction of maximum load.

For external applications where the bushings are used as sleeves fitted on spindles or shafts, the principle is reversed. The bushings are made undersize and internally chamfered.

Depending on the diameter and wall thickness, internal bushings are furnished .016" — .078" oversize, and a corresponding amount undersize for external applications.

Tension Bushings are easily installed or removed by the various methods employed for conventional solid bushings.

Where they are used

Tension Bushings are designed for those applications where:

1. High bearing pressures are exerted.
2. Wear and tear or rough handling would normally reduce the life of the equipment.
3. Motion produces an abrasive action between two surfaces and lubrication is impractical or undesirable.
4. The characteristic of movement is oscillating or of low RPM.
5. Replacement of worn, solid steel bushings has become necessary.
6. It is necessary to reduce a rebored hole to the original size. Such conditions are often encountered in rebuilding and repair work, where holes have become worn or elongated. See Fig. 1.

Tension Bushings should not be considered for replacing bronze or anti-friction bearings, or in applications involving high RPM.

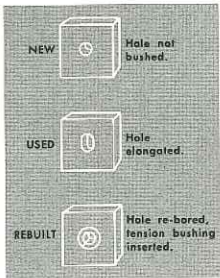


FIGURE 1

Advantages of Tension Bushings

1. Tension Bushings allow greater hole tolerances than solid bushings as the latter bushing depends on a close, interference fit to remain seated. **UNDER NORMAL CONDITIONS, TENSION BUSHINGS ARE INSERTED IN HOLES DRILLED TO ACCEPTED PRODUCTION TOLERANCES.**
2. Because they exert continued pressure, Tension Bushings will not vibrate loose or become unseated if there is an enlargement or distortion of the housing. **TENSION BUSHINGS HAVE BEEN SUCCESSFULLY SUBSTITUTED IN APPLICATIONS OF EXTREME VIBRATION WHERE SOLID BUSHINGS HAD TO BE WELDED IN PLACE.**
3. Tension Bushings have a substantially longer working life than case hardened bushings of comparable size and equivalent hardness. **IT IS POSSIBLE TO DESIGN SMALLER, LESS EXPENSIVE COMPONENTS WHEN SPECIFYING TENSION BUSHINGS, TO TAKE ADVANTAGE OF THEIR HIGH PERMISSIBLE BEARING LOAD.**
4. Tension Bushings require less pressure for insertion and removal than solid bushings. **THEY CAN BE USED IN PLACES WHERE THE HOUSING IS RESTRICTED IN SIZE WITHOUT DISTORTING THE HOLE OR CRACKING A THIN WALL HOUSING.**
5. Tension Bushings are economical to buy and save time in assembly. **A VALUE ANALYSIS OF A TYPICAL BUSHING APPLICATION, REVEALED THAT TENSION BUSHINGS COST 33% LESS THAN THE COMMERCIAL, SOLID, CASE HARDENED BUSHING IT REPLACED. IN THE ASSEMBLY REQUIRING 18 BUSHINGS, 2.85 HOURS IN LABOR TIME WAS SAVED BY THE ELIMINATION OF: 1. A REAMING OPERATION. 2. A WELDING OPERATION. 3. GRINDING AFTER WELDING.**

Typical Bushing Applications

Agricultural Equipment

- Tractors and Attachments
- Track Plates
- Cultivators
- Spreaders
- Combines
- Rototillers
- Corn Pickers
- Planters

Railroad and Track Equipment

- Brake Rigging
- Swing Hangars
- Couplings
- Switches
- Signals
- Gates

Oil Field Equipment and Mining Machinery

- Pumps
- Oil Derricks
- Drilling Equipment
- Pipe Laying Equipment
- Portable Rigs
- Excavators

Construction Equipment

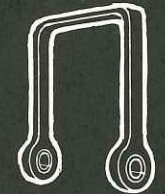
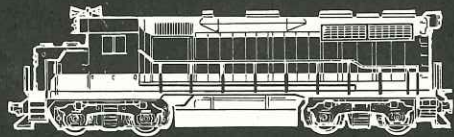
- Cranes
- Hoists
- Derricks
- Asphalt Equipment
- Portable Scaffolds
- Dump Trucks
- Concrete Mixers

Earth Moving Equipment

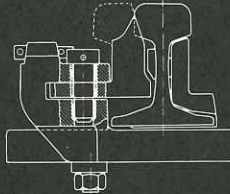
- Trenchers
- Backhoes
- Scoops
- Shovels
- Scrappers
- Pivot Points on Tractor Attachments
- Drag Lines
- Graders

Material Handling Equipment

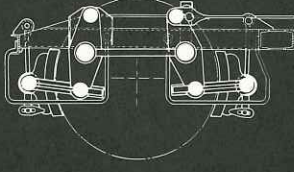
- Bucket Conveyors
- Fork Lift Trucks
- Balers
- Loaders
- Stackers
- Chain Conveyors
- Elevators



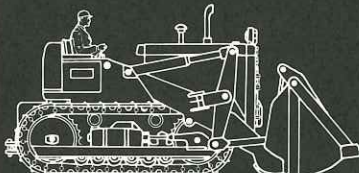
SWING HANGAR



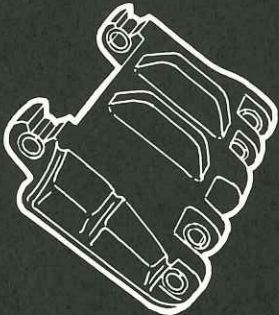
RAIL SWITCH



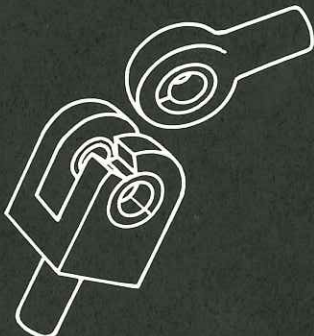
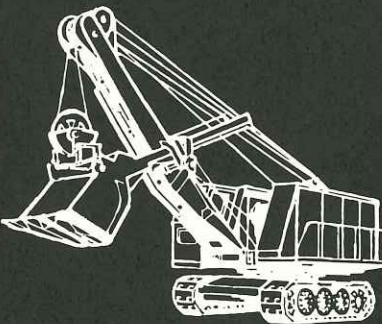
BRAKE RIGGING



DRAW BAR



TRACK PLATE



FORK AND ROD END

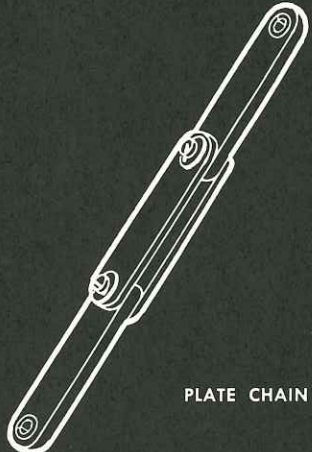
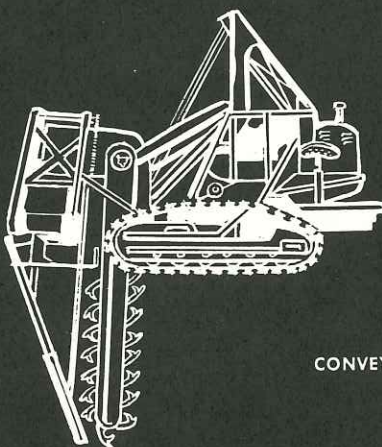
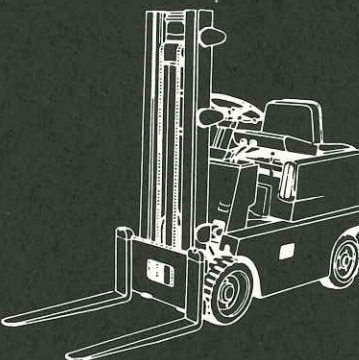
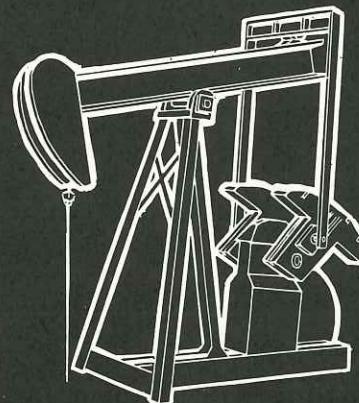


PLATE CHAIN



CONVEYOR BUCKET



TECHNICAL DATA

MATERIAL — SPECIAL SPRING STEEL

ANALYSIS:

Carbon	.52	—	.57
Manganese	.57	—	.61
Silicon	1.70	—	1.75
Sulphur max.			0.020
Phosphorus max.			0.018

TENSILE: 213,000 - 256,000 PSI.

HEAT TREATMENT: Rockwell "C" 45 - 50. (For accurate reading, hardness should be checked .012" - .016" below surface.)

PERMISSABLE BEARING PRESSURE: Maximum 7,100 lbs./sq. in. with surface speed at 16 ft./min. Lesser loads can be operated at corresponding higher speeds.

WORKING TEMPERATURE: Maximum of 625 degrees F.

FINISH: External Surface: Machined to size. Internal Surface: Comparable to a burnished finish.

DIMENSIONAL INFORMATION

SIZE RANGE:

O. D.	$\frac{19}{32}$ "	—	$\frac{57}{64}$ "
I. D.	$\frac{13}{32}$ "	—	$\frac{5}{16}$ "
WALL	$\frac{3}{32}$ "	—	$\frac{25}{64}$ "
LENGTH	$\frac{13}{32}$ "	—	$4\frac{23}{32}$ "

WIDTH OF SLOT — PRIOR TO INSERTION: Provides for interference fit and varies as to wall thickness and diameter from .016" — .078".

WIDTH OF SLOT — AFTER INSERTION: (Internal Bushings Only) Minimum .010" gap.

LENGTH TOLERANCE: $\pm .010$ ".

SLOT SELECTION: Straight slot for most normal internal applications. Slanted or arrow slot for full rotating shafts and spindles and lubricated applications.

RECOMMENDED WALL THICKNESS: Approximately 10% of bushing O.D. However, greater wall thickness should be specified when subjected to extreme loads.

RECOMMENDED SHAFT PROPERTIES: SAE 1060 steel, or equivalent, heat-treated Rockwell "C" 60.

VELOCITY LIMITATIONS:

In full rotation	—	48 ft./min.
In 180° oscillation	—	600 ft./min.
In 90° oscillation	—	900 ft./min.

CHAMFERS: The amount of chamfer is determined by O.D. of bushing to permit initial alignment for installation. Unless otherwise specified, a 30° chamfer is furnished on one end only as follows:

Bushing Diameter	Length of Chamfer	Tolerances
$\frac{3}{8}$ " — 1"	.060"	$\pm .020$ "
1" — $1\frac{3}{4}$ "	.080"	$\pm .020$ "
$1\frac{3}{4}$ " — $3\frac{1}{2}$ "	.100"	$\pm .040$ "
$3\frac{1}{2}$ " — over	.120"	$\pm .040$ "

RECOMMENDED HOLE TOLERANCES — For Internal Bushings, Grade 10, DRILLED hole tolerances, are all that is required for maintaining proper tension under normal conditions. Grade 10 tolerances are shown in TABLE 1 below.

For critical applications and under extreme conditions, holes should be reamed to tolerances specified under Grade 8, shown in TABLE 2.

TABLE 1

WALL THICKNESS OF BUSHING	HOLE DIAMETER					
	.400" — .710"	.710" — 1.190"	1.190" — 1.970"	1.970" — 3.150"	3.150" — 4.730"	4.730" — 7.090"
$\frac{3}{32}$ " — $\frac{1}{8}$ "	+.0028" — .0000"	+.0035" — .0000"	+.0040" — .0000"			
$\frac{1}{8}$ " — $\frac{1}{4}$ "			+.0045" — .0000"	+.0045" — .0000"	+.0050" — .0000"	+.0060" — .0000"
$\frac{1}{4}$ " — over				+.0050" — .0000"	+.0050" — .0000"	+.0060" — .0000"

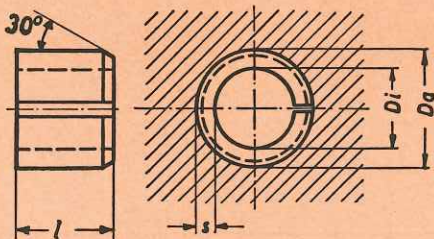
TABLE 2

WALL THICKNESS OF BUSHING	HOLE DIAMETER					
	.400" — .710"	.710" — 1.190"	1.190" — 1.970"	1.970" — 3.150"	3.150" — 4.730"	4.730" — 7.090"
$\frac{3}{32}$ " — $\frac{1}{8}$ "	+.0010" — .0000"	+.0012" — .0000"	+.0016" — .0000"			
$\frac{1}{8}$ " — $\frac{1}{4}$ "			+.0018" — .0000"	+.0018" — .0000"	+.0022" — .0000"	+.0025" — .0000"
$\frac{1}{4}$ " — over				+.0021" — .0000"	+.0022" — .0000"	+.0025" — .0000"

HOW TO ORDER TENSION BUSHINGS

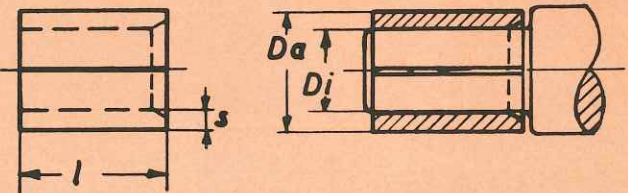
Samples will be furnished for specific applications

Internal Tension Bushings



Provide a sketch of your application. Give internal diameter of housing. (This is external diameter of bushing after insertion.) Give required internal diameter of bushing after insertion. Give length of bushing required. Give type of slot required: arrow, straight or slanted. Give tolerance on diameter of bushing. If available, provide RPM of spindle, maximum bearing pressure, type of lubrication. Generally RPM of 80 to 100 is maximum.

External Tension Bushings



Give inside diameter of bushing—same as diameter of shaft. Give external diameter of bushing in position. Give length of bushing. Give information on RPM, bearing pressure, lubrication.



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